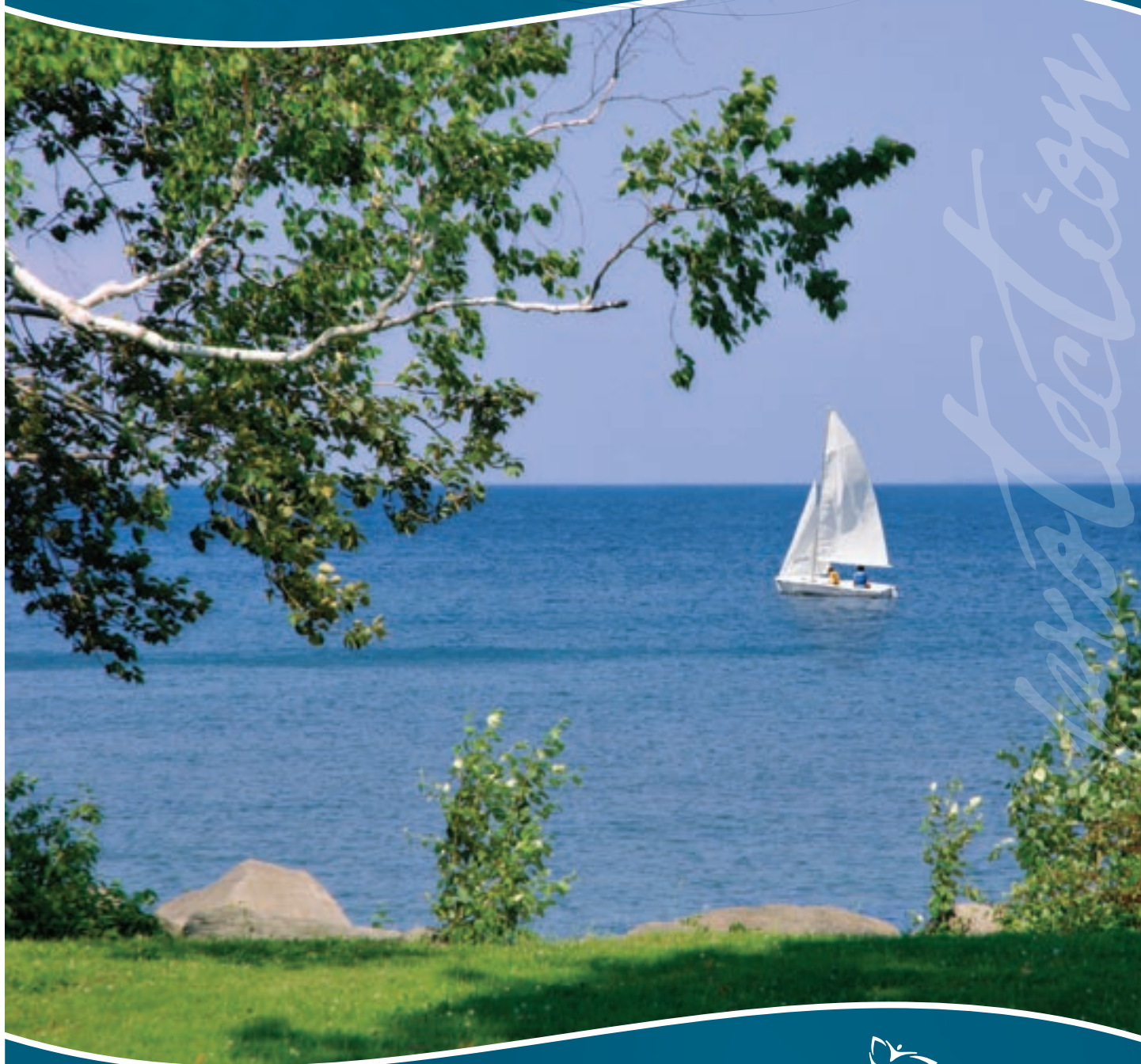


Lake Simcoe Protection Plan



Protecting our environment.



Ontario

July 2009

Lake Simcoe Protection Plan

A decorative graphic consisting of two overlapping, wavy, light gray lines that sweep from the left side of the page towards the right, positioned below the title.

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The Lake Simcoe Protection Plan was prepared and approved under the Lake Simcoe Protection Act, 2008, to take effect on June 2, 2009.

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vision

We believe ...

that the lake is life and the health of the lake determines the quality of life.

We see a *Lake Simcoe watershed* ...

where a healthy environment provides the foundation for healthy communities, healthy people and a healthy economy

where the well-being of diverse life forms – fish, wildlife, plants and human beings are enhanced

where we protect our natural environment for future generations

where natural shorelines are maintained and where *development* is well planned and ecologically sound

where citizens, governments, businesses and industries are stewards of the land, water and natural heritage

where there is greater cooperation, leadership and responsibility among all parties to protect the *Lake Simcoe watershed* for present and future generations

where our children can take their children to the beach and our grandchildren can take their grandchildren fishing and canoeing.



Chapter 1

Introduction

chapter one

ECOLOGICAL HEALTH OF LAKE SIMCOE AND ITS WATERSHED

The *Lake Simcoe watershed* contains significant natural, urban and agricultural systems including parts of the Oak Ridges Moraine and the Greenbelt. It also holds provincially-significant wetlands, woodlands, and prime agricultural areas, including specialty crop areas such as the Holland Marsh.

Ontarians have made clear their support for a comprehensive plan to protect and restore the ecological health of Lake Simcoe and its watershed. There are serious environmental problems that demand our attention and our collaboration to find solutions.

The *Lake Simcoe watershed* has experienced a wide range of interrelated pressures affecting the watershed – excessive nutrients, pollutants, *invasive species*, impacts of climate change, and increasing pressures from human activities.

The last four decades of research, monitoring, and scientific studies show how human-related activities, including urban and rural uses, recreation and agriculture, have impaired the health of the *Lake Simcoe watershed* ecosystem through direct and indirect changes. The threats include:

- degraded water quality due to excessive nutrients, such as phosphorus, contaminants, and pathogens, that directly or indirectly affect the health of the ecosystem and the suitability of the water for recreational uses;
- newly introduced species, such as zebra mussels that compromise the condition and equilibrium of the ecosystem and its resistance to other stresses;
- emerging threats, such as climate change, that also affect the condition, equilibrium, and resistance of the ecosystem;

Stresses from Human Activities

Human activities have influenced the *Lake Simcoe watershed* ecosystem for more than 200 years and *development* has changed the natural landscape, the composition and quality of vegetative cover and interfered with natural *ecological functions*. *Wetlands* and natural areas have been lost, fragmented and/or degraded. The loss of natural areas has reduced greenspace and the *biodiversity* of the watershed and has had negative impacts on the quality and quantity of water and quality of life.



Stresses from Phosphorus

Phosphorus is a key water quality concern in Lake Simcoe. While some phosphorus is required to support a healthy aquatic ecosystem, too much of this nutrient leads to excessive growth of plants. When these plants decay, oxygen that is required by fish and other aquatic species is depleted. There is little evidence in the past several decades of natural recruitment of lake trout or lake whitefish attributed primarily to low *dissolved oxygen* levels in the *hypolimnion* of the lake. The continued existence of these fish species in the lake is almost entirely due to a hatchery stocking program. Although reductions in phosphorus have led to improved oxygen conditions in the lake, the improvements are not yet sufficient for the fish to fully sustain themselves naturally.

- loss and fragmentation of sensitive natural areas and habitat, such as shorelines, *wetlands*, streamside areas, or forested lands, directly affecting the health of the watershed ecosystem;
- water quantity changes that alter ecosystem function, the quality and availability of aquatic habitats, as well as the amount of water available for human uses; and
- other human pressures, such as fishing and other resource uses, that may remove key resources from the ecosystem beyond its capacity to replenish itself.

Some of these challenges are not unique to this lake, but Lake Simcoe has particular characteristics that need a targeted plan to address its specific needs.

General Authority

As part of the government's overall strategy to protect and restore the ecological health of the *Lake Simcoe watershed*, the Lake Simcoe Protection Act, 2008 (Act) was passed by the Legislature and received Royal Assent in December 2008. This Act provides the authority for the establishment of and amendments to a Lake Simcoe Protection Plan.

This Plan generally applies to the *Lake Simcoe watershed*, which is defined in the Act as Lake Simcoe and the parts of Ontario, the water of which drains into Lake Simcoe. The *General Regulation* made under the Act provides a description of the boundaries of the watershed. The Act also allows policies in relation to research and monitoring to apply to areas outside of the watershed for the purpose of determining whether activities in those areas directly affect or indirectly affect the ecological health of the *Lake Simcoe watershed*. Future amendments to the Plan could apply certain policies of the Plan to areas outside of the watershed. Such amendments must be made in accordance with the requirements of the Act.

Invasive Species

Invasive species are one of the greatest threats to Ontario's waters, *wetlands* and *woodlands*. A variety of aquatic *invasive species* have been found in the *Lake Simcoe watershed*, several of which include the zebra mussel, round goby, spiny water flea, purple loosestrife and Eurasian watermilfoil. Many of the aquatic species found in Lake Simcoe have spread from the Great Lakes through activities such as boating, angling, and other pathways.

Terrestrial *invasive species* including giant hogweed, garlic mustard and others are introduced through ornamental gardening, or through the import of seeds in soil, or the treads of boots and tires.

Climate Change

In the winter of 2001-2002, Lake Simcoe did not completely freeze over. While not every winter will be mild, scientists say that we can expect more dramatic swings in weather patterns due to climate change.

Ontario is working on a comprehensive set of programs to reduce the province's greenhouse gas emissions that contribute to climate change. But the effects of climate change are already being observed, requiring adaptive measures to minimize impacts.

Objectives of the Plan

The objectives of the Plan as set out in the Lake Simcoe Protection Act, 2008 are to:

- protect, improve or restore the elements that contribute to the ecological health of the *Lake Simcoe watershed*, including, water quality, hydrology, key natural heritage features and their functions, and key hydrologic features and their functions;
- restore a self-sustaining coldwater fish community in Lake Simcoe;
- reduce loadings of phosphorus and other nutrients of concern to Lake Simcoe and its tributaries;
- reduce the discharge of pollutants to Lake Simcoe and its tributaries;

- respond to *adverse effects* related to *invasive species* and, where possible, to prevent *invasive species* from entering the *Lake Simcoe watershed*;
- improve the *Lake Simcoe watershed's* capacity to adapt to climate change;
- provide for ongoing scientific research and monitoring related to the ecological health of the *Lake Simcoe watershed*;
- improve conditions for *environmentally sustainable recreation* activities related to Lake Simcoe and to promote those activities;
- promote environmentally sustainable land and water uses, activities and *development* practices;
- build on the protections for the *Lake Simcoe watershed* that are provided by provincial plans that apply in all or part of the *Lake Simcoe watershed*, including the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, and provincial legislation, including the Clean Water Act, 2006, the Conservation Authorities Act, the Ontario Water Resources Act, and the Planning Act; and
- pursue any other objectives set out in the Lake Simcoe Protection Plan.

Principles to Guide Our Efforts

The following principles will guide efforts – both individual and collective – to protect and restore the ecological health of the *Lake Simcoe watershed*.

Ecosystem Approach

An ecosystem approach will be used, one that treats Lake Simcoe and its watershed as an interconnected system. Individual components of the system, including humans and our activities, affect and are affected by other parts of the system. The ecosystem approach uses best available science, considers cumulative impacts, and promotes watershed and subwatershed approaches. It recognizes that a healthy environment provides the foundation for healthy communities and a healthy economy.

Subwatershed Approach

A multi-scale watershed approach will be used, where some policies and management actions may apply across an entire watershed, whereas others may be specific to the needs and priorities of a particular subwatershed. This approach can further focus effort in selected parts of a subwatershed and provide more detailed guidance for specific water resource issues such as the development of certain targets and actions at the subwatershed level.

Precautionary Approach

Caution will be exercised to protect the environment when there is uncertainty about environmental risks.

Adaptive Management Approach

Continuously improve and adapt our approaches, policies and management by incorporating new knowledge and innovative design, practices and technology from ongoing science and monitoring. This will allow the Plan to evolve and improve over time based on new science and implementation experience.

Sustainable Development Approach

Economies and communities in the *Lake Simcoe watershed* will need to continue to grow, but must do so in conformity with provincial plans including this Plan, the Growth Plan for the Greater Golden Horseshoe, the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan, as well as in keeping with the Provincial Policy Statement, so that growth is managed in a manner that sustains a healthy ecosystem, healthy communities and healthy economies.

Shared Responsibility

Effective implementation of the Lake Simcoe Protection Plan will require collaboration amongst the Province, the First Nations and Métis communities, municipalities, the Lake Simcoe Region Conservation Authority, agricultural, commercial, and industrial sectors and small businesses, environmental groups, and the general public.

Cost-effectiveness

The Plan must be implemented in a cost-effective manner which delivers the maximum benefit to the watershed, while recognizing the fiscal realities of those who may share in the task of implementation.

Priorities of the Plan

While this Plan speaks in detail about the initial actions to be taken, it recognizes that protecting and restoring the ecological health of the *Lake Simcoe watershed* will be a long-term undertaking; initial strategies will evolve over time based on science and experience in implementing the plan.

In the near-term the Plan would focus on the issues most critical to the health of Lake Simcoe including:

- restoring the health of **aquatic life** within the Lake Simcoe watershed (*see Chapter 3*);
- improving **water quality**, including reducing loadings of phosphorus to the lake (*see Chapter 4*);
- maintaining **water quantity** (*see Chapter 5*);
- improving the health of the ecosystem by protecting and rehabilitating important areas, such as **shorelines and natural heritage** (*see Chapter 6*); and
- addressing impacts of **invasive species, climate change, and recreational activities** (*see Chapter 7*).

A **subwatershed approach** (*see Chapter 8*) will help determine priorities to focus on in different areas of the *Lake Simcoe watershed*, depending on environmental conditions and specific management considerations. This subwatershed approach will be critical to prioritizing initial actions and moving forward with an action plan into the future.

As the understanding of issues, such as conditions of subwatersheds, climate change, and impacts of atmospheric deposition, improves through research and monitoring, we will be better prepared to deal with future impacts. Ongoing monitoring and research will also help us detect changes in watershed conditions over time and measure the effectiveness of our management efforts.

How to Read this Plan

The Plan consists of targets, *indicators* and policies organized into chapters that address the following policy themes: aquatic life, water quality, water quantity, shorelines and natural heritage, other threats and activities (including *invasive species*, climate change and *recreational activities*), and implementation. Each Chapter provides background, context and explains the intent of the policies. Abbreviated terms are defined in the List of Acronyms. Terms in *italics* are defined in the Glossary.

This Plan should be read in conjunction with relevant provincial policies, plans and Acts, including the Provincial Policy Statement, 2005, the Greenbelt Plan, the Growth Plan for the Greater Golden Horseshoe, the Oak Ridges Moraine Conservation Plan, the Clean Water Act, 2006, the Ontario Water Resources Act, the Conservation Authorities Act, the Environmental Protection Act, the Public Lands Act, and the Planning Act. This Plan, in conjunction with the other plans and Acts mentioned above, express the Province's interest and direction with regard to protecting the ecological health and environmental sustainability of the *Lake Simcoe watershed*. As provided for in the Lake Simcoe Protection Act, 2008 subject to any policies in this Plan describing how to resolve conflicts between provincial policies or plans, if a conflict arises between a designated policy in this Plan and a provincial policy of another provincial plan the provision that gives the greatest protection to the ecological health of the *Lake Simcoe watershed* prevails.

Legal Effect of the Plan Under Lake Simcoe Protection Act, 2008

The policies in the Plan are grouped into four categories; the Act gives legal effect to the first three of these. The first category of policies is the "designated policies" in the Plan and they are coded as **DP**. The second category of policies is the "have regard to" policies; they are coded as **HR**. These first two categories of policies affect how decisions are made under specific statutes. The third category of policies relates to monitoring by public bodies; in the Plan they are coded as **M**. The fourth category of policies is not given legal effect by the Act. These policies set out strategic actions that public bodies should take in order to meet the Plan's objectives; in the Plan these policies are coded as **SA**.

Greenbelt Plan

The Greenbelt protects 1.8 million acres of environmentally sensitive and agricultural lands in the Greater Golden Horseshoe from urban development and sprawl.

The Greenbelt Plan encompasses the existing Niagara Escarpment Plan and Oak Ridges Moraine Conservation Plan as well as the new Protected Countryside. The Plan covers approximately 58% of the land area of the *Lake Simcoe watershed*.

The Greenbelt Plan works in conjunction with the Growth Plan for the Greater Golden Horseshoe, with the Growth Plan directing where future growth will occur.

Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe provides a 25-year vision and strategic direction for managing growth in the Greater Golden Horseshoe.

The Growth Plan encourages the development of more compact and complete communities. This type of development will make more efficient use of infrastructure and protect important natural spaces and agricultural lands from urban sprawl.

Municipalities are required to bring their official plans into conformity with the Growth Plan by June 2009. The Lake Simcoe Protection Plan will work in concert with and allow for completion of the Growth Plan conformity process.

Clean Water Act, 2006

The Clean Water Act, 2006 protects drinking water at the source, as part of an overall commitment to safeguard human health and the environment through a multi-barrier approach. The legislation sets prevention as its fundamental principle. A key focus of the legislation is the preparation of locally-developed terms of reference, science-based assessment reports and source protection plans. The intent is for communities to use a science-based approach to protect both the quality and quantity of drinking water supplies.

Designated Policies and Have Regard To Policies (Coded as “DP” and “HR”, Respectively)

The Act requires that decisions under the Planning Act or the Condominium Act, 1998 or decisions related to a “prescribed instrument” conform with the applicable designated policies in the Plan and have regard to the other applicable policies. Comments, submissions and advice of a public body must also conform with the applicable designated policies and have regard to the other policies that apply to such decisions. At the end of this Plan is a Schedule which sets out the “designated policies” and the “have regard to” policies in the Plan and the type of decision to which each policy applies.

(1). Designated Policies and Have Regard To Policies Affecting Decisions under the Planning Act and Condominium Act, 1998

The Act requires decisions under the Planning Act or the Condominium Act, 1998, to conform to the applicable designated policies in the Plan and have regard to other applicable policies. Comments, submissions and advice given by a public body in relation to such decisions must also conform to the applicable designated policies and have regard to any other applicable policies. The Act also requires that municipalities bring their official plans into conformity with the applicable “designated policies” at their five-year official plan review.

(2). Designated Policies and have Regard to Policies Affecting Decisions In Relation To Prescribed Instruments

The *General Regulation* under the Act lists the following instruments as “prescribed instruments”:

- A permission that is granted under the Conservation Authorities Act:
 - for *development* in or on the areas described in subsection 2 (1) of Ontario Regulation 179/06 (Lake Simcoe Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) made under that Act; or
 - to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse or to change or interfere with a *wetland*.
- A permit to take water that is issued under the Ontario Water Resources Act.
- An approval to establish, alter, extend or replace new or existing *sewage works* that is granted under the Ontario Water Resources Act.
- A work permit that is issued under the Public Lands Act.
- A licence within the meaning of subsection 1 (1) of the Fish and Wildlife Conservation Act, 1997 that is issued under that Act.
- An approval issued under the Lakes and Rivers Improvement Act for the location of a dam and its plans and specifications.

The Act requires that all decisions to create or amend a prescribed instrument conform with the applicable designated policies in the Plan, and have regard to other applicable policies. The Act also allows the Plan to require that a prescribed instrument be amended by a specified date to conform with the applicable designated policies in the Plan. Comments, submissions and advice given by a public body in relation to such decisions must also conform to the applicable designated policies and have regard to any other applicable policies. While policies that apply to prescribed instrument decisions affect how such decisions are made, the Act makes clear that such policies cannot alter the scope of the authority to issue, create or amend the instrument that is provided under the instrument’s enabling statute.

Even though permits to take water under the Ontario Water Resources Act and licences under the Fish and Wildlife Conservation Act are specified as prescribed instruments, in this version of the Plan there are no policies applicable to them. Therefore at this time the Plan does not affect decisions related to these instruments, but may do so in the future once certain strategic actions specified in the Plan are completed.

Policies governing Monitoring By Public Bodies (Coded as “M”)

If a public body is identified in the Plan as being responsible for the implementation of a policy governing monitoring, the Act requires the public body to comply with any obligations imposed on it by the monitoring policy. For this reason, monitoring policies are placed in a separate category from the other policies that commit public bodies to specified actions.

Policies In Relation to Strategic Actions (Coded as “SA”)

As envisioned by the Act, this Plan includes many other types of policies that are equally essential to achieving the Plan’s objectives but are not given legal effect by the Act, such as policies respecting stewardship programs, pilot programs, research, outreach and education, and, in several instances, policies that specify actions for public bodies. These policies are not designated policies. Under the Act, these policies are not legally enforceable, nor do they create legal duties. Rather, accountability for these policies is achieved through methods other than courts or tribunals, such as through the periodic progress reports on the Plan that are mandated under the Act. Chapter 8 contains more information on oversight in relation to the implementation of the policies in the Plan, including the SA policies.

Most of the SA policies have timeframes indicating when these actions are anticipated to be completed. Where an SA policy is silent on a timeframe, this may be an indication that the action specified is an ongoing action. It also may be an indication that a timeframe for completion is not predictable because the action is dependant on other actions or requires further analyses or discussions amongst the specified persons or bodies to develop an implementation strategy for the policy. Significant progress is anticipated on these actions within the period preceding Plan review, and this progress will be reported through the progress reports required under the Act. Further, some SA policies use the term in “collaboration” while others use the term in “partnership”. Partnership is used to convey a more structured relationship amongst the persons and bodies responsible for a policy; collaboration is used to convey a less structured relationship. For example, a more structured relationship may include a memorandum of understanding or a formal cost-sharing arrangement amongst the persons or bodies responsible for a SA policy.

In chapter 8 of the Plan, there are also policies governing the types of Plan amendments that the Minister is authorized to approve, pursuant to paragraph 10 of subsection 5 (2) of the Act. Where the Minister is not authorized to approve a Plan amendment, the Act requires that it be approved by the Lieutenant Governor in Council.

No matter is being specified in the Plan for the purpose of paragraph 5 of subsection 5 (2) of the Act. Therefore, there is nothing in this Plan that limits the ability of decision makers on planning applications to adopt policies more restrictive than the provisions in the Plan unless doing so would conflict with any of the policies or objectives of the Plan. Decision-makers who are considering applications in relation to prescribed instruments may also adopt policies more restrictive or protective than the provisions in the Plan.

Effective Date of the Plan

The effective date of the Lake Simcoe Protection Plan is June 2, 2009. As of this date the policies in this Plan have legal affect as provided by the Lake Simcoe Protection Act, 2008, subject to the transition rules described below.

Transition

Section 27 of the Lake Simcoe Protection Act, 2008 provides authority for a regulation addressing transitional matters. The *General Regulation* under the Act provides transition rules both in relation to applications, matters or proceedings that were commenced prior to the Plan coming into effect but were not disposed of as of the effective date of the Plan, and in relation to specific applications, matters or proceedings commenced after the effective date of the Plan. This regulation can be viewed at www.e-laws.gov.on.ca.

Watershed Boundary

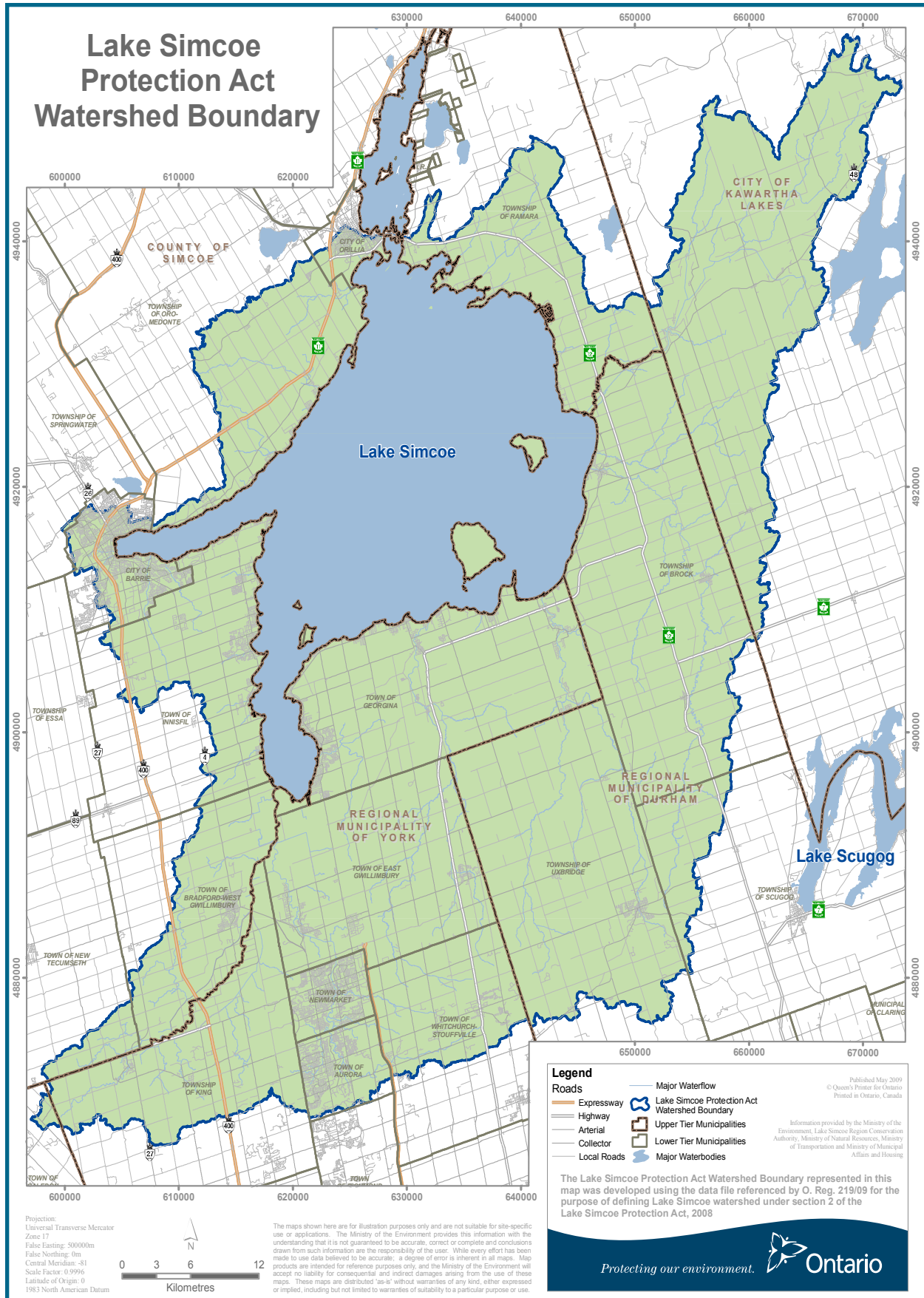
The policies of this Plan currently apply solely within the *Lake Simcoe watershed*. Authority is provided in the Lake Simcoe Protection Act, 2008 , to prescribe areas outside of the watershed boundary for the purpose of applying future policies to those areas. There are currently no areas prescribed as outside areas.

The *Lake Simcoe watershed* is defined in section 2 of the Act as Lake Simcoe and the part of Ontario, the water of which drains into Lake Simcoe or, if the boundaries are described more specifically in the regulations, the area within those boundaries. The *General Regulation* under the Act describes the area of the watershed and includes a reference to an electronic watershed boundary in the Land Information Ontario (LIO) warehouse, called “Lake Simcoe Protection Act Watershed Boundary”. This watershed boundary may be accessed through the internet at both LIO and the MOE’s Lake Simcoe website, www.ene.gov.on.ca.

The watershed boundary referenced by the *General Regulation* may be amended from time to time. The LIO warehouse will contain the current version of the boundary, as well as previous versions of the boundary after it has been amended.

- 1.1-DP** In relation to any matter affected by a policy in this Plan, the boundary of the *Lake Simcoe watershed* that applies to the matter is the boundary that was in effect at the time the matter is commenced. Whether a matter is considered commenced shall be determined in accordance with the rules specified in the *General Regulation* under the Lake Simcoe Protection Act, 2008 .

Lake Simcoe Protection Act Watershed Boundary



Note: For illustrative purposes only. Information provided by Ministry of the Environment, Lake Simcoe Region Conservation Authority, Ministry of Natural Resources, Ministry of Transportation and Ministry of Municipal Affairs and Housing.



Chapter 2

Building on Past Actions

chapter two

Cooperative efforts and actions by watershed partners already started to bring about improvements in the health of Lake Simcoe. For example, levels of *dissolved oxygen* in the bottom waters of the lake have increased and there is some evidence of natural reproduction in the coldwater fish community.

There have been longstanding partnership efforts to protect the health of Lake Simcoe; some of these are described below.



Field studies of aquatic life

Lake Simcoe Environmental Management Strategy (LSEMS)

The LSEMS program began in 1990 with the goal of restoring a self-sustaining coldwater fishery in Lake Simcoe by improving water quality. It was a multi-agency partnership involving the MOE, the MNR, the MAFRA, the MMAH, the MEI and the LSRCA. More recently watershed municipalities, the Chippewas of Georgina Island First Nation, Environment Canada and Fisheries and Oceans Canada had joined the partnership. The LSRCA chaired the partnership.

The LSEMS program focused mainly on controlling and reducing phosphorus inputs to Lake Simcoe in three major phases of the program:

- In Phase I (1990-1995), LSEMS was successful in reducing phosphorus levels entering the lake from more than 100 tonnes per year to an average of 67 tonnes per year.
- Phase II (1996-2001) included the completion of 55 water quality improvement projects, a 2.5 metric tonne reduction in the annual phosphorus loading to Lake Simcoe, completion of a hydrologic mass balance for the Lake and the completion of a Total Water Quality Study examining the benefits of phosphorus control measures.
- Phase III (2002-2008) was the final phase and it saw completion of a State of the Lake Simcoe Watershed (2003) report which provides an overview of existing conditions (e.g., geology, natural heritage, water and air quality, fisheries, etc.) and a Lake Simcoe Basin Wide Report (2008) that described actions being taken to protect and restore the basin and to identify emerging issues in the *Lake Simcoe watershed*.

Some of the research compiled through LSEMS was synthesized and adopted by the *Lake Simcoe Science Advisory Committee* and informs the Lake Simcoe Protection Plan.

Intergovernmental Action Plan (2006)

To address common interests in environmental protection, *development* certainty, and effective and sustainable governance, the Province partnered with the 19 municipalities in Simcoe County, including Barrie and Orillia, to produce the Intergovernmental Action Plan (IGAP).

Agricultural and Community Actions

Farmers in the *Lake Simcoe watershed* have made significant progress toward using improved agricultural practices and technologies. These include buffer strip creation along riparian areas, improved manure storage facilities and technologically advanced cropping systems. Some of this work has been accomplished by individual farmers on their own, and some has been done through formal stewardship programs such as the Environmental Farm Plan Program, the Lake Simcoe Water Quality Improvement Program, the Ontario Stewardship Program and a range of local, provincial, and federal-provincial cost-share programs.

In other areas of the watershed, rural landowners, community groups and individuals have participated in a variety of stewardship, education and outreach programs that have reduced stream-bank erosion, improved *fish habitat*, increased natural cover and encouraged sustainable actions throughout the watershed.

Assimilative Capacity Study for Lake Simcoe

One of the key initiatives of the IGAP was the Assimilative Capacity Study (ACS) for the *Lake Simcoe watershed*. The ACS was developed in collaboration with federal, provincial, municipalities, the Lake Simcoe Region Conservation Authority, the Nottawasaga Valley Conservation Authority, and other stakeholders.

The ACS produced a modelling tool to inform decision-makers of the potential impacts of existing and planned land use activities on water quality. The ACS also developed a process for establishing subwatershed loading targets.

Provincial support for agricultural and community initiatives

- The Province has provided financial and technical support to agricultural and community initiatives through the Environmental Farm Plan, the Lake Simcoe Farm Stewardship Initiative, the Community Fisheries and Wildlife Involvement Program, the Managed Forest and Conservation Land Tax Incentive Programs, the Ontario Stewardship Program and other conservation and green community programs.
- Through the Ontario Stewardship program, the Province provides support to county-based stewardship councils that represent the broad-base of landowner and community interests in their areas. The Province facilitates partnerships and leverages financial and in-kind resources for a wide variety of stewardship, education and outreach projects.

Municipalities

Municipalities have made significant investments that have had a positive impact on the lake. These include *sewage treatment plant* upgrades, storm-water management retrofits, aquatic habitat improvement and septic system decommissioning, investments in stewardship programs and supporting the Lake Simcoe Region Conservation Authority among others.

Municipal phosphorus reductions

Under the Lake Simcoe Water Quality Improvement Program, municipalities have reduced phosphorus inputs by:

- replacing inadequate private septic systems;
- retrofitting stormwater ponds;
- undertaking stream bank erosion control projects;
- inspecting sewage treatment facilities regularly and reporting effluent concentrations monthly;
- decommissioning 2,200 septic systems along the *Lake Simcoe shoreline*.

Lake Simcoe Region Conservation Authority (LSRCA)

Conservation Authorities are local, community-based environmental agencies. They represent a grouping of municipalities on a watershed basis and work in partnership with others to manage their respective watersheds. The Conservation Authorities Act provides the means by which the province and municipalities of Ontario could join together to form a Conservation Authority within a specific area.

The Lake Simcoe Protection Plan builds on the ongoing work of the LSRCA and the LSRCA will continue to be a key partner in the implementation of the Plan and protection of the watershed. The LSRCA's mission is to provide leadership in the restoration and protection of the environmental health and quality of Lake Simcoe and its watershed with community, municipal and other government partners.

Lake Simcoe Region Conservation Authority

The LSRCA has led improved stormwater management strategies for major municipalities around the lake. As a result, since 2000, all new developments around the lake have met or exceeded the highest provincial environmental design standards for stormwater management.

Federal Government

The federal government also has a presence in the watershed through its existing departments. Parks Canada is an example of how different levels of the federal government continue to protect and manage the lake's ecosystem. Lake Simcoe is part of the Trent-Severn Waterway.

The federal government established a Lake Simcoe Clean-Up Fund which supports reductions in the amount of phosphorus inputs, rehabilitating priority habitats, restoring the coldwater fishery, and improving scientific understanding for decision-making.

Lake Simcoe Advisory Committees

The *Lake Simcoe Science Advisory Committee* was appointed in February 2008 to advise the Province on how best to protect and improve the *Lake Simcoe watershed* ecosystem to guide the development of the Lake Simcoe Protection Plan. The committee provided valuable scientific advice on the state of the lake and its watershed, pressures on the system now and in the future, identification of ecosystem features that need protection and on appropriate management methods and a monitoring plan to support the protection strategy.

In May 2008, the Province appointed a *Lake Simcoe Stakeholder Advisory Committee* to gain input from the wide range of interests around Lake Simcoe. The committee included representatives from: LSRCA, First Nations, municipalities, farmers and the agricultural sector, tourism, fisheries, business, developers, residents, cottagers and environmentalists. The committee provided valuable input and advice to the government on the development of the Lake Simcoe Protection Plan.

These two advisory committees will be replaced by a Lake Simcoe Coordinating Committee and a Lake Simcoe Science Committee, described in *Chapter 8: Implementation*.



Chapter 3

Aquatic Life

chapter three

CONTEXT

Healthy ecosystems, including healthy aquatic communities, provide significant social and economic benefits, contributing to a high quality of life for the people of Ontario. Currently, aquatic communities and habitats in Lake Simcoe are stressed by degraded water quality, unsustainable land uses, and pressures from other human activities.

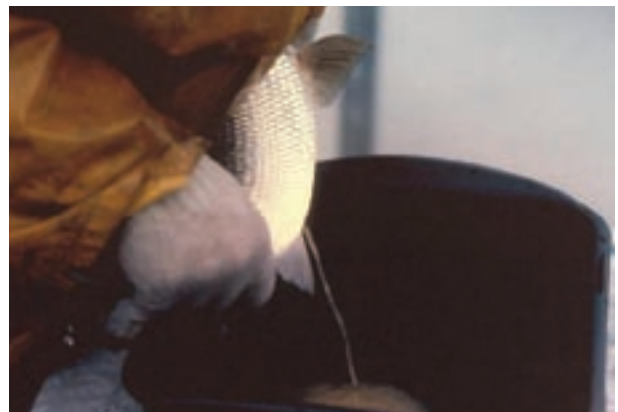
Improving and restoring the health of aquatic life within the *Lake Simcoe watershed* will depend on successfully implementing the policies of this chapter, as well as those related to water quality, water quantity, shorelines and natural heritage, *invasive species*, and climate change that are outlined in the other chapters of this Plan. This Plan will seek to improve habitats for aquatic life and help to protect and restore aquatic communities throughout the watershed by improving our overall management and stewardship of these resources.

The health of the coldwater fish community, specifically the lake trout, is a good indicator of environmental quality and the overall health of the aquatic ecosystem. The health of the warm-water and tributary fish communities and their *ecological functions* are also important in determining how well the aquatic ecosystem is functioning. Additional *indicators* of environmental quality include the *biodiversity* of aquatic life within the watershed and the presence of species that are rare, threatened, or endangered.

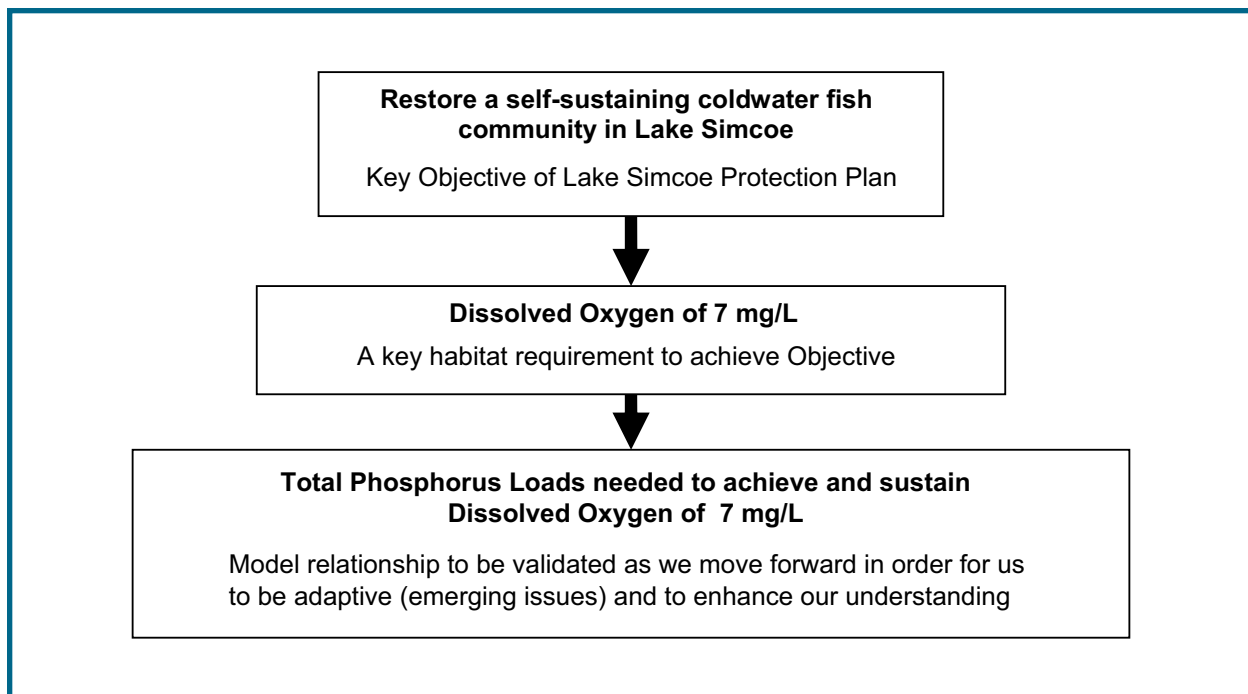
Excessive phosphorus loads to the lake from changes in watershed land use and associated activities is perhaps the most significant stressor. Excess phosphorus has led to the depletion of *dissolved oxygen* in deep waters of the lake that provide essential habitat for coldwater species such as lake trout and lake whitefish.



Large Mouth Bass



Collection of Whitefish Eggs



Key assumptions between the relationship of attaining the Plan objective of restoring a self-sustaining coldwater fish community in Lake Simcoe, dissolved oxygen habitat requirements and the total phosphorus loads needed to achieve the dissolved oxygen requirements.

Key Facts

- 35 rivers flow into Lake Simcoe, including the Holland River, Black River, Beaver River, Pefferlaw River and Uxbridge Brook, which in total comprise almost 4,000 kilometres of streams.
- Lake Simcoe supports a wide variety of aquatic animals including:
 - coldwater fish such as lake trout and lake whitefish;
 - warmwater fish such as bass and perch;
 - invertebrates including crayfish, insects, snails and clams;
 - amphibians and reptiles;
 - benthos and plankton.
- 65 species within the watershed ecosystem are rare and 33 of these are species at risk, including the Jefferson salamander and the spotted turtle.
- Current conditions do not fully support the natural production of lake trout and whitefish, therefore, a hatchery stocking program exists that annually releases approximately 100,000 yearling lake trout and 140,000 fall fingerling lake whitefish to support rehabilitation of these native species.
- Since 2001, there has been evidence that natural reproduction of lake trout and lake whitefish has increased, consistent with water quality improvements.
- Degraded water quality is believed to have been the primary cause of population failures of lake trout and other coldwater fish species.

Lake Simcoe supports a significant winter fishery for lake trout, lake whitefish, and perch with considerable socio-economic benefits. It is also a year-round destination fishery for perch, which attracts tourists from Canada and the United States and is also known for its world-class bass fishing. The fact that Lake Simcoe is the most intensively fished inland lake in Ontario may add significant stress to the aquatic communities of the lake. Properly managing these additional pressures will be key to restoring a self-sustaining coldwater fish community while maintaining a sustainable recreational fishery and its associated social benefits.

This Plan supports the development of fish community objectives specific to the *Lake Simcoe watershed* that will be used to inform land use and watershed planning and management activities. Monitoring and research will be conducted to further our understanding of the lake and its watershed, their aquatic communities, and the way they function, which in turn will improve our ability to manage its resources. The Plan will also support the review of Lake Simcoe's coldwater fish stocking program to ensure that stocking targets continue to assist in restoring a self-sustaining coldwater fish community. It will also support an evaluation of the ecological and socio-economic value of the aquatic life resources within the watershed.

Target:

- Mean Volume Weighted *Hypolimnetic Dissolved Oxygen* Concentration of 7 mg/L on September 15th

Indicators:

- Natural reproduction and survival of native aquatic communities
- Presence and abundance of key sensitive species (i.e. lake trout and brook trout)
- Shifts in cold, warm and tributary fish community composition

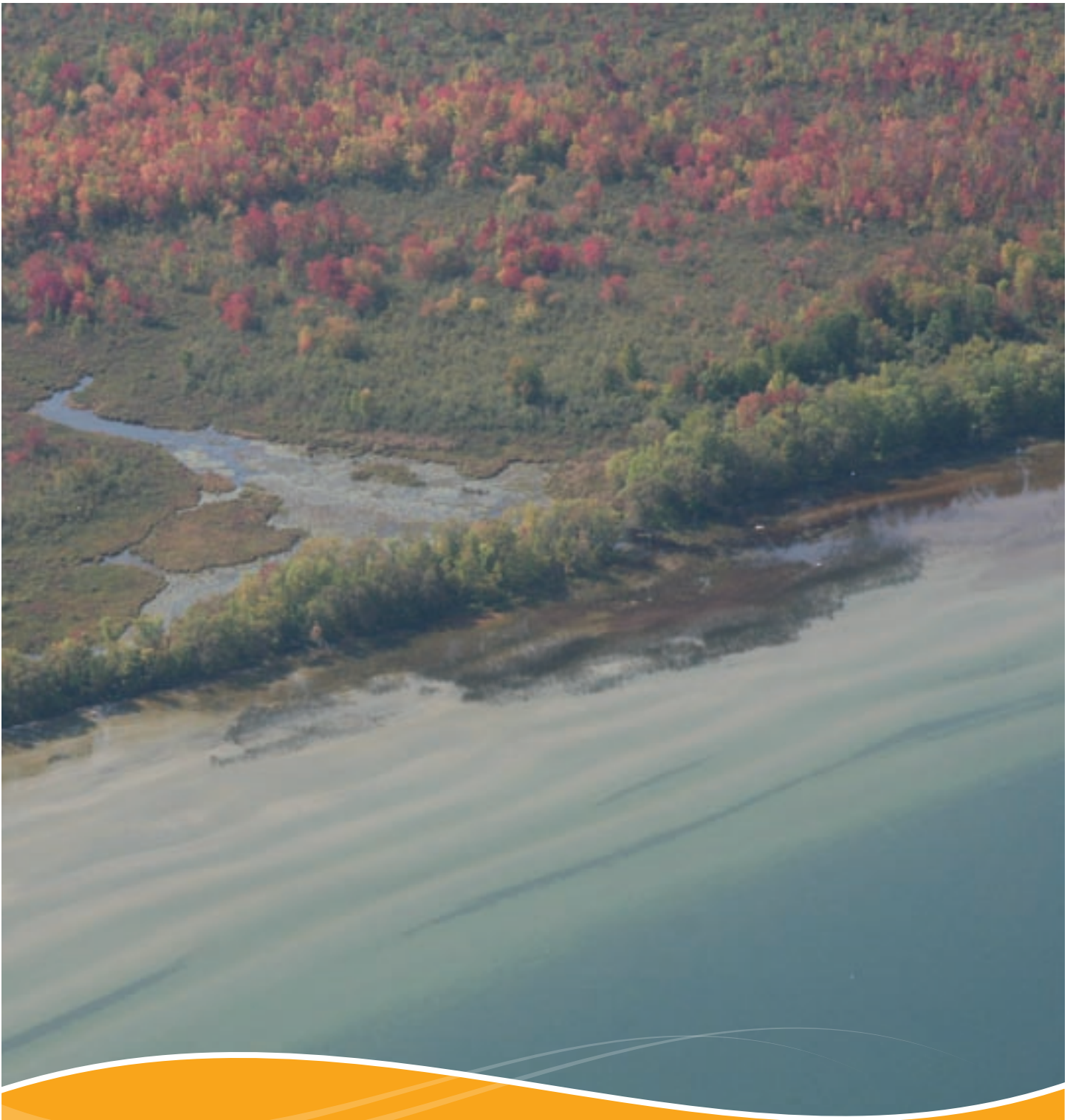
Policies:

3.1-SA Within two years of the date the Plan comes into effect, the MNR will develop Fish Community Objectives for Lake Simcoe and its tributaries. This process will be undertaken in collaboration with First Nations and Métis communities, public bodies, the Lake Simcoe Fisheries Stakeholder Committee, key stakeholders and the general public. These objectives will focus on the warm and coldwater fish communities of Lake Simcoe; however, the objectives will also address the entire aquatic community in both the Lake and tributaries. The Fish Community Objectives will be used by public bodies to inform decisions relating to the management of land, water and natural resources, increase the resilience of Lake Simcoe's aquatic communities to future impacts of *invasive species* and climate change, and ensure sustainable resource use and social benefit.

3.2-SA Within two years of the date the Plan comes into effect, the MNR will initiate, using an adaptive management approach, a review of its coldwater species stocking program, and will establish new stocking targets. This review will be done in collaboration with First Nations and Métis communities, public bodies, the Lake Simcoe Fisheries Stakeholder Committee, and other key stakeholders.

- 3.3-SA** Within five years of the date the Plan comes into effect, the MNR, in collaboration with First Nations and Métis communities, public bodies, the Lake Simcoe Fisheries Stakeholder Committee, and other key stakeholders, will complete a socio-economic evaluation of the monetary, ecological, social and cultural value and impact of the aquatic life resources within the Lake Simcoe watershed, beginning in the first year with a feasibility study of the socio-economic benefits of maintaining a healthy Lake Simcoe to foster a thriving recreational fishery.
- 3.4-SA** Beginning the date the Plan comes into effect, the MNR, in collaboration with First Nations and Métis communities, DFO, Parks Canada, the MOE, and the LSRCA, will establish base-line mapping of aquatic habitats in Lake Simcoe and its tributaries building on existing monitoring programs and established databases. The MNR will regularly review and update this information and include, where feasible, shoreline and in-water developments, including in-water structures, tributary barriers, channelizations, and hardened shorelines.
- 3.5-SA** Beginning the date the Plan comes into effect the MNR, in collaboration with the MOE, the LSRCA and other partners, will undertake research projects on the aquatic communities of Lake Simcoe and its tributaries. The focus of the research will be on filling knowledge gaps associated with the aquatic communities in the watershed that may include recommendations by the Lake Simcoe Science Committee among others. Research projects will be identified and undertaken that examine the biological components of the ecosystem, their processes and linkages. The research projects would build on existing knowledge or address knowledge gaps, and be integrated with existing and any new research programs in the watershed. Collaboration among research groups is encouraged. The focus of initial research projects may include:
- a. production dynamics and ecological function research tied to the coldwater fish community and the function of offshore food webs and ecosystems; or
 - b. an evaluation of the impacts of nearshore water quality, nutrients, *primary production dynamics*, *invasive species* and climate change on the fish community and the function of the nearshore foodwebs and ecosystems.

- 3.6-M** Beginning the date the Plan comes into effect, the MNR, in collaboration with the MOE and the LSRCA, shall develop and implement an annual aquatic community monitoring program for the *Lake Simcoe watershed*. Once the program is fully implemented, it is intended to cover the Lake, the tributaries and other inland *lakes* in the watershed. The program shall build upon existing aquatic community monitoring programs undertaken by the MNR, the MOE and the LSRCA. This program shall support an adaptive management approach, and may be altered from time to time to respond to changing environmental conditions and land, water and natural resource management needs. The components of the annual aquatic community monitoring program shall include one or more of the following:
- a. surveys of winter and open-water anglers;
 - b. fish diet and growth studies;
 - c. monitoring of nearshore and offshore fish communities;
 - d. monitoring of fish *biodiversity*;
 - e. monitoring of *invasive species*;
 - f. monitoring of *benthic* invertebrates; or
 - g. monitoring of aquatic habitat including macrophyte surveys.



Chapter 4

Water Quality

chapter four

CONTEXT

Clean water is critical to both human and ecological well-being.

Degraded water quality has historically placed significant stress on Lake Simcoe, its tributaries and the life they support. Stresses from urban, rural, recreational and agricultural activities have changed the landscape, vegetation, and *ecological functions* of the watershed and contributed to increases in the inputs of pollutants. Human activities in the watershed have also affected water quantity which can, in turn, significantly affect water quality. The primary stressors that degrade water quality include:

- excessive nutrients, primarily phosphorus;
- pollutants and contaminants, such as heavy metals, organic chemicals, sediments, and chlorides; and
- pathogens, such as *E. coli*.

In addition to these stressors emerging issues such as pharmaceuticals and personal care products, climate change and *invasive species* can also directly and indirectly impact water quality. Although the extent of the impact of climate change on water quality is uncertain, it is projected that it will influence the frequency, intensity, extent and magnitude of existing water quality problems. Some examples of climate change impacts on water quality may include:

- variations in stream flow regimes and lake levels affecting aquatic biota and habitats;
- increases in sediment, phosphorus loading, and concentrations of contaminants;
- increases in wind and flood transportation of nutrients, sediments and contaminants;
- drinking water odour and taste problems, as water intakes are subjected to increases in algae concentrations; and
- impacts to the nearshore area of *lakes* that may exacerbate the bioaccumulation of toxics by fish.

Excessive phosphorus has been the most significant cause of the water quality impairment in Lake Simcoe and its tributaries. It leads to the excessive growth of plants and algae in the lake, which contributes to the depletion of *dissolved oxygen* in the deep waters of the lake and degradation of the critical habitat of coldwater species.

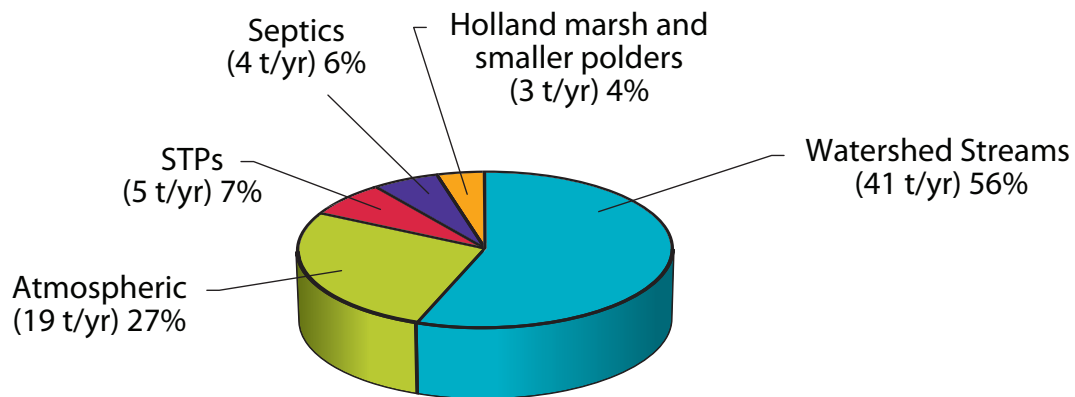


Human impact on the shoreline



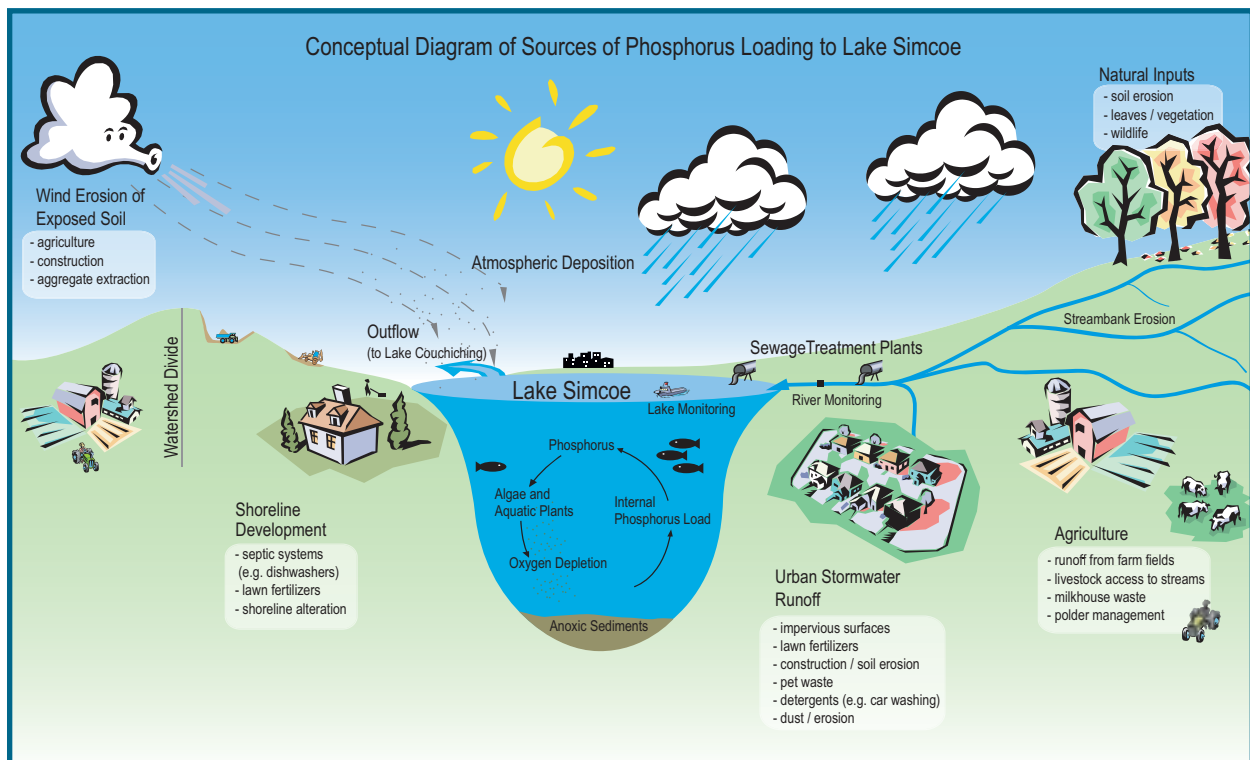
Algae bloom

Lake Simcoe Phosphorus Sources



Lake Simcoe Phosphorus Sources¹

¹ LSRCA and MOE Data Sets on Phosphorous Loadings for 2002-2007



Conceptual diagram of sources of phosphorus loading to Lake Simcoe and relationship between phosphorus and dissolved oxygen.

It is important to note that there is annual variation to phosphorus loads delivered to Lake Simcoe. The amount of phosphorus loading to the lake changes from year-to-year and annual variation does not necessarily represent an upward or downward trend in phosphorus loads. For example, changes in discharged loads, runoff, land use and the climate (which has the greatest impact on annual variation) will influence the amount of phosphorus loading. Therefore, to get a true picture of phosphorus loading trends to Lake Simcoe, an assessment averaged over many years must be used. The average phosphorus loading, over the last five reporting years (2002 – 2007), to Lake Simcoe is 72 Tonnes / year, with an annual range of 67 to 77 Tonnes / year.

The primary sources of excess phosphorus to Lake Simcoe and its tributaries include:

- effluent from *sewage treatment plants* serving urban communities and industry in the watershed;
- stormwater runoff from urban areas within the watershed;
- land use activities in rural, agricultural, urban and shoreline areas;
- septic systems; and
- atmospheric deposition of phosphorus in airborne dust caused by wind erosion from *site alteration* activities, construction sites, agricultural fields and *mineral aggregate operations*.

One of the biggest water quality challenges in Lake Simcoe is to reduce phosphorus loads to a level at which *dissolved oxygen* conditions could support a self-sustaining coldwater fish community. Based on estimates from current models, phosphorus loadings would need to be reduced to a level of approximately 44 tonnes per year to achieve the proposed *dissolved oxygen* target of 7 milligrams per litre (mg/L).

The Province set interim limits on *sewage treatment plants* and stormwater facilities around Lake Simcoe targeting phosphorus. These limits, set out in Ontario Regulation 60/08 (Lake Simcoe Protection) under the Ontario Water Resources Act, seek to control the phosphorus entering Lake Simcoe from specific municipal and industrial sources by:

- limiting phosphorus discharges from municipal and industrial *sewage treatment plants*;
- stopping new *sewage treatment plants* that would discharge phosphorus from being established; and
- making stormwater management facilities serving new *development* meet the highest design standards.

This regulation applies from April 1, 2008, to March 31, 2010, and is intended to protect Lake Simcoe's water quality until more permanent policies are developed, such as those in this Plan.

The policies in this chapter are intended to identify and address sources that cause water quality impairment and to enhance existing water quality. In many cases, activities may address more than one water quality parameter or ecosystem stressor. The Plan would impose stricter controls with respect to *sewage treatment plants*, stormwater management, septic systems and construction activities and encourage better management practices for agricultural, rural and urban communities.

To achieve ambitious reductions in phosphorus loadings, there would need to be reduced loadings from all sources that contribute to excess phosphorus throughout the watershed. This Plan would also support a coordinated, adaptive management, and phased approach to reducing excess phosphorus through the development of a phosphorus reduction strategy for the *Lake Simcoe watershed*.

Key Facts

- Phosphorus loads measured from 2004 to 2007 ranged from 70 tonnes per year (in 2006-07) to 77 tonnes per year (in 2003-04) and were at the high end of the previously published (1998 to 2004) range of 53 to 76 tonnes per year. Current loads are well below levels in the early 1990s, which exceeded 100 tonnes per year.
- Tributaries flowing into Lake Simcoe that currently are known to exceed the Provincial Water Quality Objectives for phosphorus include the East and West Holland, North Schomberg, Upper Schomberg, Maskinonge and Black Rivers as well as Tannery and Whites Creeks.
- A key indicator of improving water quality in recent years is the increase in deep-water *dissolved oxygen* concentrations during late summer to more than 5 mg/L from less than 3 mg/L in most years during the 1980s and early 1990s.
- Other pollutants of current or emerging concern in the watershed include chloride, toxic metals (e.g. chromium, aluminum, cadmium), organic chemicals, and pharmaceuticals.
- Based on Ontario's sport fish contaminant monitoring data used in the Guide to Eating Ontario Sport Fish, contaminant levels in sport fish (e.g., walleye, whitefish and carp) have decreased or remained stable over the last 10 to 15 years.

Targets:

- Reduce phosphorus loadings to achieve a target for *dissolved oxygen* of 7 mg/L in the lake (long-term goal currently estimated at 44 tonnes per year)
- Reduce pathogen loading to eliminate beach closures
- Reduce contaminants to levels that achieve Provincial Water Quality Objectives or better

Indicators:

- To evaluate progress in achieving the water quality-related objectives of the Plan, the following are *indicators* of environmental health relating to water quality in Lake Simcoe and its tributaries:
 - *Dissolved oxygen* in Lake Simcoe
 - Total phosphorus
 - concentration
 - loading
 - Pathogens
 - beach closures
 - Other water quality parameters
 - chlorides
 - other nutrients (e.g. nitrogen)
 - total suspended solids
 - heavy metals
 - organic chemicals

Sewage Treatment

The Plan recognizes that sewage treatment plants are essential to communities and industry in the *Lake Simcoe watershed*; they treat sewage that would otherwise impair water quality and contribute excessive amounts of nutrients, pathogens, pollutants and sediment to the Lake Simcoe watershed. Future growth in the watershed will result in a greater demand on these sewage treatment plants to manage more sewage at a higher level of treatment. The potential impacts of emerging issues such as pharmaceuticals and personal care products and the impacts of climate change on existing sewage treatment infrastructure also need to be considered. The following policies are intended to further improve water quality, including addressing emerging issues, and reduce excessive phosphorus loading to the lake by imposing requirements on existing approvals and placing restrictions on both phosphorus loadings and the establishment of new sewage treatment plants, with some exceptions.

- 4.1-DP** For a proposed *settlement area* expansion, establishment of a new *settlement area* or a *development* proposal outside of a *settlement area* that requires an increase in the existing *rated capacity* of a *sewage treatment plant* or the establishment of a new *sewage treatment plant*, an environmental assessment of the undertaking shall be completed or approved prior to giving any approvals for the proposal under the Planning Act or the Condominium Act, 1998.
- 4.2-DP** Within one year of the date the Plan comes into effect, the *Director* shall review and amend the approvals for all *sewage treatment plants* in the *Lake Simcoe watershed* to ensure each *sewage treatment plant* owner and operator is required to do the following:
- a. demonstrate compliance with the *Average Concentration Limit* for total phosphorus specified in the approval:
 - i. at a minimum on a monthly basis, or
 - ii. in the case of a *sewage treatment plant* with a seasonal discharge, on the frequency specified in the approval;
 - b. conduct an initial characterization of effluent using a manner specified by the *Director* within five years of the amendment; and
 - c. report back to the *Director* within six months of the initial characterization of effluent being completed.
- 4.3-DP** No new *municipal sewage treatment plant* shall be established in the *Lake Simcoe watershed* unless:
- a. the new plant is intended to replace an existing *municipal sewage treatment plant*; or
 - b. the new *sewage treatment plant* will provide sewage services to,
 - i. a *development* that is on *partial services*, or
 - ii. a *development* where one or more *subsurface sewage works* or *on-site sewage systems* are failing.

- 4.4-DP** No new *non-municipal sewage treatment plant* shall be established in the *Lake Simcoe watershed* unless the person applying to establish the plant can demonstrate that:
- a. the plant will result in a net reduction of phosphorous loadings to the watershed from the baseline conditions for the property that would be serviced by the new plant; or
 - b. the undertaking that the plant will serve will not add phosphorous loadings to the *Lake Simcoe watershed*.

Stormwater Management

These policies call for comprehensive master plans to improve the management of stormwater for both existing and planned *development*. Applications for new *major development* must demonstrate how phosphorus loadings and changes in water balance will be minimized. The MOE will place stringent requirements on approvals for new stormwater works and will also review and, if necessary, revise existing approvals.

- 4.5-SA** Within five years of the date the Plan comes into effect, municipalities, in collaboration with the LSRCA, will prepare and implement comprehensive stormwater management master plans for each *settlement area* in the *Lake Simcoe watershed*. The stormwater management master plans will be prepared in accordance with the Municipal Class Environmental Assessment and will include:
- a. a characterization of existing environmental conditions on a subwatershed basis, consistent with any relevant subwatershed evaluations, if available;
 - b. an evaluation of the cumulative environmental impact of stormwater from existing and planned *development*;
 - c. a determination of the effectiveness of existing stormwater management works at reducing the negative impacts of stormwater on the environment, including consideration of the potential impacts of climate change on the effectiveness of the works;
 - d. an examination of any stormwater retrofit opportunities that have already been identified by the municipality or the LSRCA for areas where stormwater is uncontrolled or inadequately controlled;
 - e. the identification of additional stormwater management retrofit opportunities or improvements to existing stormwater management works that could improve the level of treatment within a particular *settlement area*;
 - f. a description of existing or planned programs for regular maintenance of stormwater management works;
 - g. an identification of the recommended approaches for stormwater management in each *settlement area*; and
 - h. an implementation plan for the recommended approaches.

4.6-SA Municipalities are encouraged to implement a stormwater retrofit prior to the completion of a stormwater management master plan if a stormwater retrofit opportunity has been identified as a priority for a *settlement area* and is determined to be economically feasible.

4.7-DP Municipalities shall incorporate into their official plans policies related to reducing stormwater runoff volume and pollutant loadings from *major development* and *existing settlement areas* including policies that:

- a. encourage implementation of a hierarchy of source, lot-level, conveyance and end-of-pipe controls;
- b. encourage the implementation of innovative stormwater management measures;
- c. allow for flexibility in development standards to incorporate alternative community design and stormwater techniques, such as those related to site plan design, lot grading, ditches and curbing, road widths, road and driveway surfaces, and the use of open space as temporary detention ponds;
- d. support implementation of programs to identify areas where source control or elimination of cross connections may be necessary to reduce pathogens or contaminants; and
- e. support implementation of source control programs, which are targeted to existing areas that lack adequate stormwater controls.

4.8-DP An application for *major development* shall be accompanied by a stormwater management plan that demonstrates:

- a. consistency with stormwater management master plans prepared under policy 4.5, when completed;
- b. consistency with subwatershed evaluations prepared under policy 8.3 and water budgets prepared under policy 5.2, when completed;
- c. an *integrated treatment train approach* will be used to minimize stormwater management flows and reliance on end-of-pipe controls through measures including source controls, lot-level controls and conveyance techniques, such as grass swales;
- d. through an evaluation of anticipated changes in the water balance between pre-development and post-development, how such changes shall be minimized; and
- e. through an evaluation of anticipated changes in phosphorus loadings between pre-development and post-development, how the loadings shall be minimized.

4.9-DP Stormwater management works that are established to serve new *major development* in the *Lake Simcoe watershed* shall not be permitted unless the works have been designed to satisfy the *Enhanced Protection level* specified in Chapter 3 of the MOE's "Stormwater Management Planning and Design Manual 2003", as amended from time to time.

This policy does not apply if the works are intended to serve an *infill development* or a *redevelopment* within a *settlement area*, it is not feasible to comply with the specified design standard, and the person seeking to establish the works demonstrates that the works incorporate the most effective measures in the circumstances to control the quality and quantity of stormwater related to the *development* or *redevelopment*.

4.10-DP Every owner and operator of a new stormwater management works in the *Lake Simcoe watershed* shall be required to inspect and maintain the works on a periodic basis.

4.11-DP Every owner and operator of a new *priority stormwater management works* in the *Lake Simcoe watershed* shall be required to monitor the operation of works, including monitoring the quality of the effluent from the works, on a periodic basis.

4.12-SA The MOE will review the approvals issued under section 53 of the Ontario Water Resources Act in respect of existing *priority stormwater management works* within the *Lake Simcoe watershed*. If a review of an approval for an existing *priority stormwater management works* determines that the conditions in the approval are inadequate, having regard to the objectives of the Plan, including the conditions related to inspection, maintenance and monitoring, the approval will be referred to the *Director* for the purpose of determining whether an amendment to the approval is necessary to assist in meeting the objectives of the Plan.

On-Site and Subsurface Sewage Treatment

Septic systems that are inadequate or not functioning properly are potentially significant sources of pathogens that may eventually enter Lake Simcoe and its tributaries. It is estimated that the septic systems adjacent to Lake Simcoe contribute approximately 4.4 tonnes of phosphorus to Lake Simcoe annually. The following policies are intended to help improve water quality and prevent additional phosphorus loading to the lake as well as protect our natural heritage.

4.13-SA Within one year of the date the Plan comes into effect, the MMAH and the MOE will develop a proposal for a regulation under the Ontario Building Code Act, 1992, to designate the lands within 100 metres of the *Lake Simcoe shoreline*, other *lakes*, and any *permanent stream* of Lake Simcoe, as a prescribed area for required *on-site sewage system* maintenance re-inspections.

4.14-SA The MMAH, in consultation with the MOE, municipalities, conservation authorities, health units and industry partners, will consider new standards, including those being developed by the Bureau de Normalisation du Québec for small *on-site sewage systems* that evaluate new treatment unit technologies with respect to the reduction of pathogens and nutrients. The MMAH will consider the appropriateness of an amendment to Ontario's Building Code to incorporate the new standards.

4.15-DP Subject to other policies of the Plan, a new *on-site sewage system* or *subsurface sewage works* shall not be permitted within 100 metres of the *Lake Simcoe shoreline*, other lakes, or any *permanent stream* except in the following circumstances:

- a. a proposal for an *on-site sewage system* or *subsurface sewage works* that would serve an *agricultural use*, an *agricultural-related use* or a public open space;
- b. a proposal for an *on-site sewage system* or *subsurface sewage works* that would replace or expand the capacity of an existing *on-site sewage system* or *subsurface sewage works* that will serve a use that would have been permitted by the applicable zoning by-law, as of the effective date of the Plan; or
- c. a proposal for an *on-site sewage system* or *subsurface sewage works* that relates to a development proposal for only one dwelling, where the proposal would have been permitted by the applicable zoning by-law, as of the effective date of the Plan.

Construction and Mineral Aggregate Resource Activities

Land use practices that expose soils to wind and runoff have resulted in significant soil erosion impacting water quality in the Lake Simcoe and its tributaries. Overall atmospheric deposition accounts for a significant portion of the annual phosphorus load to Lake Simcoe, but we don't know the exact sources and quantities from those sources. These policies will assist in getting a better understanding of the sources and relative quantities of phosphorus delivered to the Lake through atmospheric deposition. In the meantime, the Plan identifies a number of actions ranging from mandatory conditions for subdivision agreements, site plans and for *site alteration*, while also promoting the implementation of effective and practical best management practices to reduce soil erosion and address atmospheric deposition from construction, aggregate and agricultural sites.

4.16-SA Within two years of the date the Plan comes into effect, the MOE will complete a study that identifies the sources of atmospheric deposition contributing phosphorus to the *Lake Simcoe watershed*.

4.17-SA Within three years of the date the Plan comes into effect, the MOE will:

- a. review measures, including regulatory controls and best management practices, to reduce water quality impairment, including the contribution of phosphorus loadings to the *Lake Simcoe watershed* from construction activities;
- b. evaluate the effectiveness of the measures; and
- c. identify preferred measures based on the review and the study referred to in policy 4.17, including the types of policies that could be included in the Plan.

4.18-SA Within three years of the date the Plan comes into effect, the MNR and the MOE, in consultation with the aggregate industry and key stakeholders, will determine the need for additional standards in the Aggregate Resources of Ontario-Provincial Standards for mineral resource aggregate activities within the *Lake Simcoe watershed*. The determination will be based on the findings of the study identified in policy 4.17 and the MNR's review of the Aggregates Resources of Ontario-Provincial Standards.

4.19-SA The mineral aggregate resources industry is encouraged to adopt best management practices as a proactive measure to reduce potential contribution of phosphorus loadings to the *Lake Simcoe watershed*.

4.20-DP Municipalities shall ensure that the following measures are incorporated into subdivision agreements and site plan agreements:

- a. keep the removal of vegetation, grading and soil compaction to the minimum necessary to carry out *development* activity;
- b. removal of vegetation shall not occur more than 30 days prior to grading or construction;
- c. put in place structures to control and convey runoff;
- d. minimize sediment that is eroded offsite during construction;
- e. seed exposed soils once construction is complete and seasonal conditions permit; and
- f. ensure erosion and sediment controls are implemented effectively.

4.21-HR *Site alteration* in the *Lake Simcoe watershed* shall be undertaken in a manner that incorporates the measures set out in policy 4.20.

Scientific Water Quality Monitoring and Research

Recognizing the need for an adaptive management approach to water quality issues, the following policies are intended to enhance the ability of the Province and its partners to effectively monitor water quality in the *Lake Simcoe watershed*, while promoting, conducting and supporting water quality research in key areas to help inform decision-making and future Plan policy amendments with the best available science.

4.22-M The MOE, in partnership with the MNR and the LSRCA, shall develop and implement an enhanced scientific water quality monitoring program that builds upon the monitoring program implemented through the LSEMS. This monitoring program shall be based on an adaptive management approach, and may be altered from time to time to respond to changing environmental conditions and management needs. At a minimum this monitoring program shall include:

- a. routine monitoring of the water quality of Lake Simcoe and its tributaries;
- b. monitoring of water quality parameters that affect the health of the Lake Simcoe ecosystem, for example, nutrients, pathogens, chlorides, sediments, heavy metals and organic chemicals;
- c. monitoring of biological *indicators* linked to water quality; and
- d. performance monitoring and reporting that evaluates the effectiveness of protection measures specified in this Plan that are designed to improve water quality.

4.23-SA The MOE, MNR and MAFRA, in collaboration with the LSRCA and other partners, will promote, conduct and support scientific research projects. These projects will build on existing research and monitoring programs, identify emerging issues and support the overall adaptive management approach of the Plan. Initial research will focus on one or more of the following:

- a. monitoring nutrients, including on-going validation of the phosphorus loading goal;
- b. tracking sources of pollutants, such as pathogens that are a cause of beach closures, and assessing other contaminants such as chlorides;
- c. enhancing existing lake water quality models that relate total phosphorus loads to *dissolved oxygen* and considering new models used in other aquatic ecosystems, as well as those that assess the impacts associated with *invasive species*, climate change, and other emerging issues;
- d. stormwater management, including effectiveness of stormwater management design and techniques, innovative technologies, *integrated treatment train approach*; and
- e. impact of organic chemicals and emerging compounds, such as personal care products, pharmaceuticals and endocrine disruptors in Lake Simcoe.

Phosphorus Reduction Strategy

In order to achieve the ambitious reductions in phosphorus loadings proposed in the Plan, there is a need to reduce loadings from all sources that contribute to excess phosphorus throughout the watershed. The following policies recognize this need by requiring the development of a phosphorus reduction strategy for the *Lake Simcoe watershed*, which will support a phased, coordinated and adaptive management approach to reducing excess phosphorus loadings. These policies also consider the need for innovative solutions to reducing phosphorus, like the proposal to conduct a feasibility study to determine the effectiveness of a *water quality trading* program in the watershed.

4.24-SA Within one year of the date the Plan comes into effect, the MOE, in collaboration with other Provincial ministries, the First Nations and Métis communities, the LSRCA and municipalities will develop a Phosphorus Reduction Strategy for the *Lake Simcoe watershed* for the purpose of reducing phosphorus loadings to achieve the target of *dissolved oxygen* of 7 mg/L. The Strategy will be designed to accommodate the implementation of the Growth Plan for the Greater Golden Horseshoe, where relevant. The components of the Phosphorus Reduction Strategy will include:

- a. the development of subwatershed phosphorus loading targets;
- b. if determined to be necessary, the development of phosphorus loading targets for specific areas of Lake Simcoe, including individual targets for Kempenfelt Bay, Cook's Bay, and the main basin;

- c. an assessment of sources or sectors that contribute phosphorus loadings to the watershed, including:
 - i. *sewage treatment plants*,
 - ii. tributary sources,
 - iii. *subsurface sewage systems*,
 - iv. stormwater runoff, and
 - v. sources of atmospheric deposition;
- d. an identification of practical and effective actions that should be taken to address each source or sector assessed under sub-paragraph c;
- e. the proposal of a long-term total phosphorus loading cap for each *sewage treatment plant in the Lake Simcoe watershed*. These long-term phosphorus loading caps will be integrated and consistent with phosphorus loading goal established in the Plan and targets referred to under sub-paragraph a. and b., and will consider the following:
 - i. detailed evaluations of treatment efficiency, flow capacity and economic feasibility in achieving various effluent limits,
 - ii. flow capacity needed to accommodate the population and employment growth allocated to the areas serviced by a *sewage treatment plant*,
 - iii. minimum standards for phosphorus removal, and
 - iv. timelines required for achieving compliance with the new loading caps; and
- f. an examination of how effluent re-use opportunities in the *Lake Simcoe watershed* may contribute to reducing phosphorus loadings to achieve the *dissolved oxygen* target of 7 mg/L.

4.25-SA Within one year of the date the Plan comes into effect the MOE will conduct a feasibility study for *Water Quality Trading* pursuant to subsection 75, (1.8), of the Ontario Water Resources Act.

4.26-SA Within one year of the date of the Plan comes into effect, the MOE, in consultation with municipalities will develop and implement a plan to promote the use of low-phosphate or phosphate-free products within the *Lake Simcoe watershed*.

Stewardship

Many of the designated policies and strategic actions described in this chapter cannot be implemented in isolation and will require active partnership with stewardship activities, described in detail in Chapter 8. Stewardship will augment the water quality policies by adding the voluntary efforts and activities of agricultural, rural and urban landowners and residents, and for those in charge of public lands.

Stewardship programming is intended to promote phosphorus reduction and pollution management by using best management practices that can be implemented by individuals on single or multiple properties. Examples include shoreline and riparian management (e.g. planting of native species) by appropriate shoreline and streamside landowners, nutrient management by farmers and municipalities, innovative and 'green' design by developers, urban planners and engineers (e.g. innovative stormwater infrastructure), and soil conservation and management on farms, mineral and aggregate resource operations, golf courses and municipal lands.



Chapter 5

Water Quantity

chapter five

CONTEXT

Extractions of large volumes of groundwater and surface water may be contributing to diminishing water supplies in the *Lake Simcoe watershed*, reducing base flow to streams and reducing the overall flow of water into Lake Simcoe. Adequate flow in rivers and streams is needed to sustain aquatic ecosystems and certain subwatersheds in the *Lake Simcoe watershed* are already under water quantity stress, causing changes in the aquatic habitats of rivers and streams and impacting aquatic communities.

Changes in water levels and flows can also affect other elements of the watershed such as water quality and the health of natural areas and shorelines. Watershed residents and users also depend on a sustainable water supply for a variety of uses, including drinking water, irrigation, industrial processing, navigation, recreation and wastewater assimilation.

Demand for water will likely intensify as continuing growth and *development* diminish available supplies and increase demand for water. In addition, climate change also has potential impacts on water quantity, including:

- demand for water potentially exceeding supply;
- changes in ice cover affecting evaporation, lake levels, shoreline erosion, precipitation, seasonality, and lake-effect snow;
- periodic failures of *sewage* and flood control infrastructure;
- reduction in ground water and artesian flows; and
- an increase in flooding and/or drought events.

The policies included in the Plan help increase the capacity of the *Lake Simcoe watershed* to adapt to the impacts of climate change. The MOE's Permit to Take Water Program, source protection planning under the Clean Water Act, 2006, the MNR's Ontario Low Water Response Program, would continue to play important roles in managing water quantity in the *Lake Simcoe watershed*.

To protect aquatic ecosystems in the *Lake Simcoe watershed*, an adequate portion of the available water supply must be reserved for the ecosystem and restricted from human consumption.



Non-essential water use



Irrigating golf courses

This Plan would support research to estimate the reserve flows required to maintain healthy aquatic ecosystems in the watershed. It would also promote greater efforts to conserve and use water more efficiently in order to maintain future demands for water within sustainable limits. Specific targets for protecting water quantity will be developed once the research has been completed.

Key Facts

- The use of large amounts of groundwater and surface water can cause reduced flow in streams, the lowering of the water table and a reduced total inflow of water to the Lake. At high risk of depletion (e.g., below the level to maintain base flow) is the Maskinonge River
- The State of the Lake Simcoe Watershed Report (LSEMS, 2003) pointed to decreases in streamflow that have affected the availability of aquatic habitats and resulted in the loss of recreational opportunities and impacts to the local economy
- Water quantity issues can bring with them significant impacts across the *Lake Simcoe watershed*. These issues are attracting more attention through initiatives such as source water protection under the Clean Water Act, 2006, which will lead to the development of “water budgets” that quantify the volumes of water in a watershed

Indicators:

- To monitor progress in achieving the water quantity-related objectives of the Plan, the following are *indicators* of environmental health relating to water quantity:
 - maintenance of in-stream flow regimes that are protective of aquatic ecosystem needs (as identified in the in-stream flow studies and implemented through the water-taking strategy); and
 - effective water conservation and efficiency plans (e.g., as measured through reductions in peak water demand, reduced water use per capita, progress in achieving municipal targets).

Policies:

Water Supply

The policies below will support the maintenance of adequate flows required to maintain healthy aquatic ecosystems in the *Lake Simcoe watershed*.

- 5.1-SA** The MOE and the MNR will develop in-stream flow targets for water quantity stressed subwatersheds in collaboration with LSRCA. This includes the development of targets for in-stream flow regimes and water extraction limits for the Maskinonge River subwatershed within two years of the date the Plan comes into effect. The targets will build on watershed information and assessments developed through Drinking Water Source Water Protection Program (Clean Water Act, 2006) and will consider the potential impacts of climate change and will be used to inform future strategies related to water taking. These strategies may lead to policies that:

- a. require the development of targets for all other subwatersheds, and set out how much water can be allocated among users in a subwatershed, including setting aside an allocation to support the natural functions of the ecosystem;
- b. specify requirements on the *Directors* when issuing or amending Permits To Take Water in that subwatershed; or
- c. address climate change adaptation for water taking in the watershed.

5.2-SA The LSRCA, in partnership with municipalities, will complete *Tier 2 water budgets* for all subwatersheds that have not been completed in the assessment report required under the Clean Water Act, 2006 for the Lake Simcoe and Couchiching/Black River Source Protection Area. Priority should be given to all stressed subwatersheds identified in Policy 5.1, where *Tier 2 water budgets* have not been completed under the Clean Water Act, 2006. The water budgets may be used to inform:

- a. municipal water conservation and efficiency plans, including those prepared under Policy 5.3 and municipal decisions concerning growth and *development*;
- b. water-taking strategies prepared under Policy 5.1 and decisions made by the *Director* concerning Permits To Take Water;
- c. the identification of significant groundwater recharge areas identified in Policy 6.36-DP of this Plan; or
- d. policies that would be included in future amendments to the Plan.

Water Conservation and Efficiency

The policies below will promote greater efforts to conserve and use water more efficiently throughout the *Lake Simcoe watershed*.

5.3-SA Within five years of the date the Plan comes into effect, the municipalities of Barrie, Orillia, New Tecumseth, Bradford West Gwillimbury, Innisfil, Oro- Medonte and Ramara will prepare and begin implementation of a water conservation and efficiency plan, that has regard to the recommended standards and practices for the municipal sector including those recommended by the Ontario Water Works Association. A water conservation and efficiency plan will, at a minimum:

- a. establish targets for water conservation and/or efficiency with timeframes for achieving these targets;
- b. identify and evaluate:
 - i. water conservation measures such as improved management practices, the use of flow-restricting devices and other hardware, water reuse and recycling, and practices and technologies associated with water reuse and recycling,
 - ii. water conservation incentives such as full-cost pricing, and
 - iii. methods for promoting water conservation measures and water conservation incentives, including public education and awareness programs for rural residents not served by a municipal water supply system;

- c. analyze the costs and benefits of the measures described in clause (a);
- d. require the use of specified water conservation measures and incentives;
- e. contain an implementation plan for those specified measures and incentives that reconciles the demand for water with the water supply;
- f. provide for monitoring and reporting of the effectiveness of the conservation plan and achievement of water conservation and/or efficiency targets; and
- g. consider the potential impacts of climate change.

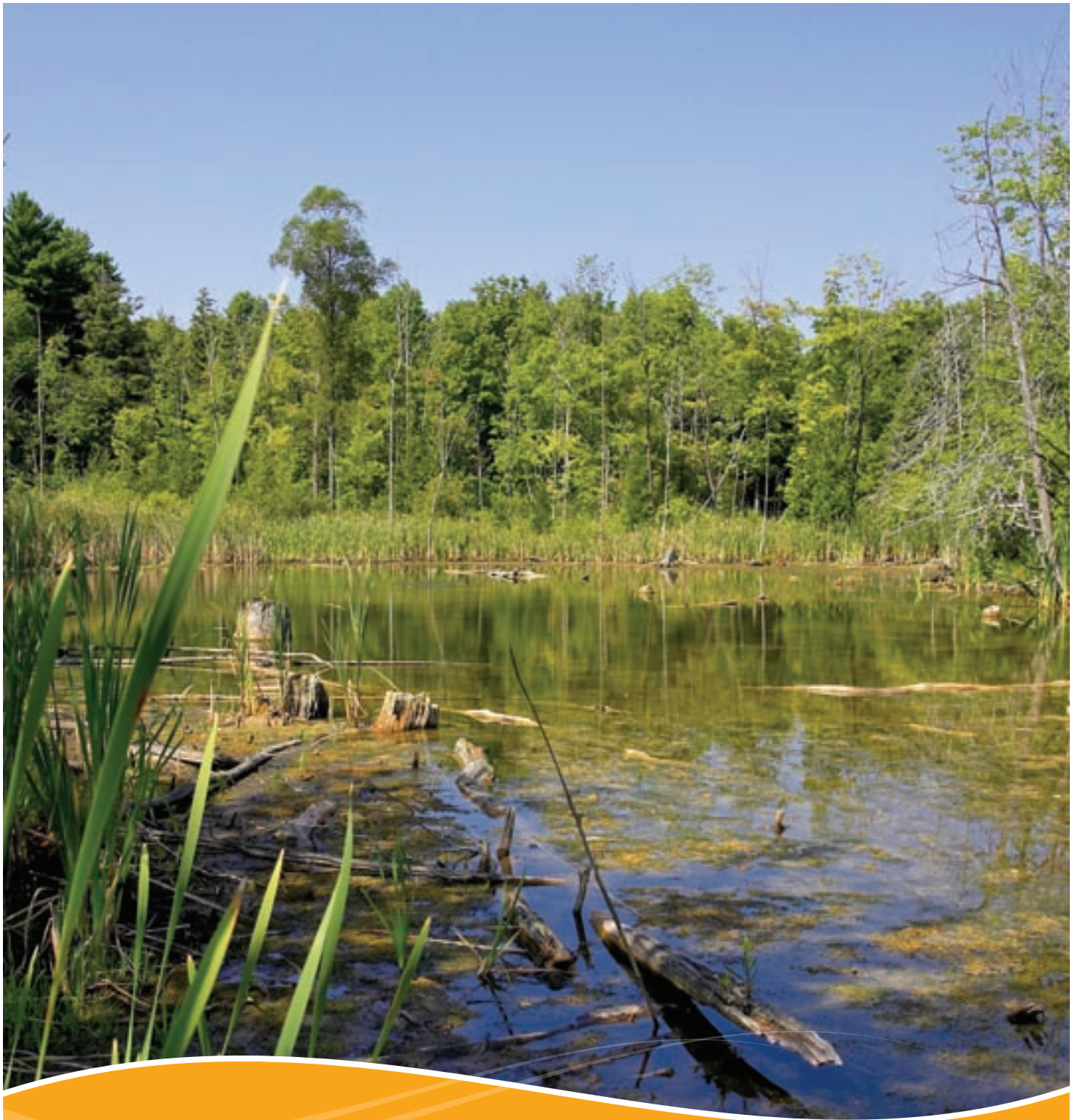
5.4-SA The MAFRA, in cooperation with key stakeholders, will assist and encourage water conservation and efficiency efforts in the agricultural community through stewardship programs aimed at promoting the adoption of best management practices. Specific opportunities may include:

- a. education and outreach under the Environmental Farm Plan other *Lake Simcoe watershed*-focused programs, and related cost-share support to implement agricultural water conservation and efficiency best management practices; or
- b. in stressed subwatersheds, where adoption of individual best management practices through the Environmental Farm Plan does not address agricultural water supply challenges, investigation of a strategic approach to water supply planning to identify communal infrastructure, other stewardship programs, or cost-share and partnership opportunities, as appropriate.

5.5-SA The MOE will work with other water use sectors, such as the *major recreational use* sector and other commercial and industrial sectors, in the *Lake Simcoe watershed* to encourage the development and implementation of water conservation and efficient use practices for their sector.

5.6-DP An application to establish or expand a *major recreational use* shall be accompanied by a recreation water use plan that demonstrates:

- a. water use for maintenance or snow-making or both are kept to a minimum;
- b. grassed, watered and manicured areas are limited to sports fields surfaces, golf fairways, tees and greens, and landscaped areas around buildings and structures; grass mixtures that require minimal watering and upkeep will be used for sports fields and golf fairways where applicable;
- c. crossings of intermittent and *permanent streams* are kept to a minimum;
- d. water-conserving technologies (such as low-flow toilets and shower heads) are used in clubhouses and restaurants where applicable;
- e. water-conserving technologies (such as timed irrigation systems designed to reduce evaporation losses, and recycling of water from under greens) are used in the irrigation and watering of sports field surfaces, golf fairways, tees and greens, and landscaped areas around buildings and structures, where applicable;
- f. other water conservation technologies (such as rainwater harvesting or reuse of stormwater) will be used to reduce water use; and
- g. stormwater treatment facilities are used to capture and treat runoff from areas with impervious surfaces.



Chapter 6

Shorelines and Natural Heritage

chapter six

CONTEXT

Natural heritage refers generally to terrestrial, *wetland* and aquatic features (e.g., *woodlands*, *wetlands*, and streams) and their functions (e.g., *wildlife habitat*, shoreline stabilization).

The promotion and protection of the ecological health of the *Lake Simcoe shoreline* and the watershed's natural heritage are important in order to foster a resilient, adaptable, and sustainable watershed. Natural heritage features are vital components of the ecosystem in and of themselves and are closely linked to other elements such as water quality and quantity. Healthy natural heritage features help to regulate water quality and quantity by preventing erosion, stabilizing shorelines, filtering contaminants, and retaining carbon, nutrients, and sediments. The *Lake Simcoe shoreline* and other natural heritage and hydrologic features in the watershed also provide many cultural, social and economic benefits through recreation and tourism, and the sustainable harvest of natural products.

Currently, the loss and/or degradation of natural heritage features present a challenge in the *Lake Simcoe watershed*. Threats to natural heritage features can lead to drastic and detrimental changes, potentially reducing the quality of natural heritage features and their functional role in the overall health of the watershed.

Climate change can also directly and indirectly impact natural areas and shorelines. Climate change can influence the frequency, intensity, extent and magnitude of existing problems and cause impacts to natural areas and shorelines such as:

- drought and flooding;
- change in species composition;
- interference or alteration of biological events such as migration and breeding;
- shifts or loss of *biodiversity* within *woodlands*, *riparian areas* and *wetlands*;
- unknown impacts to *wetland* functions; and
- changes to forest cover and ecosystem functions in the watershed.



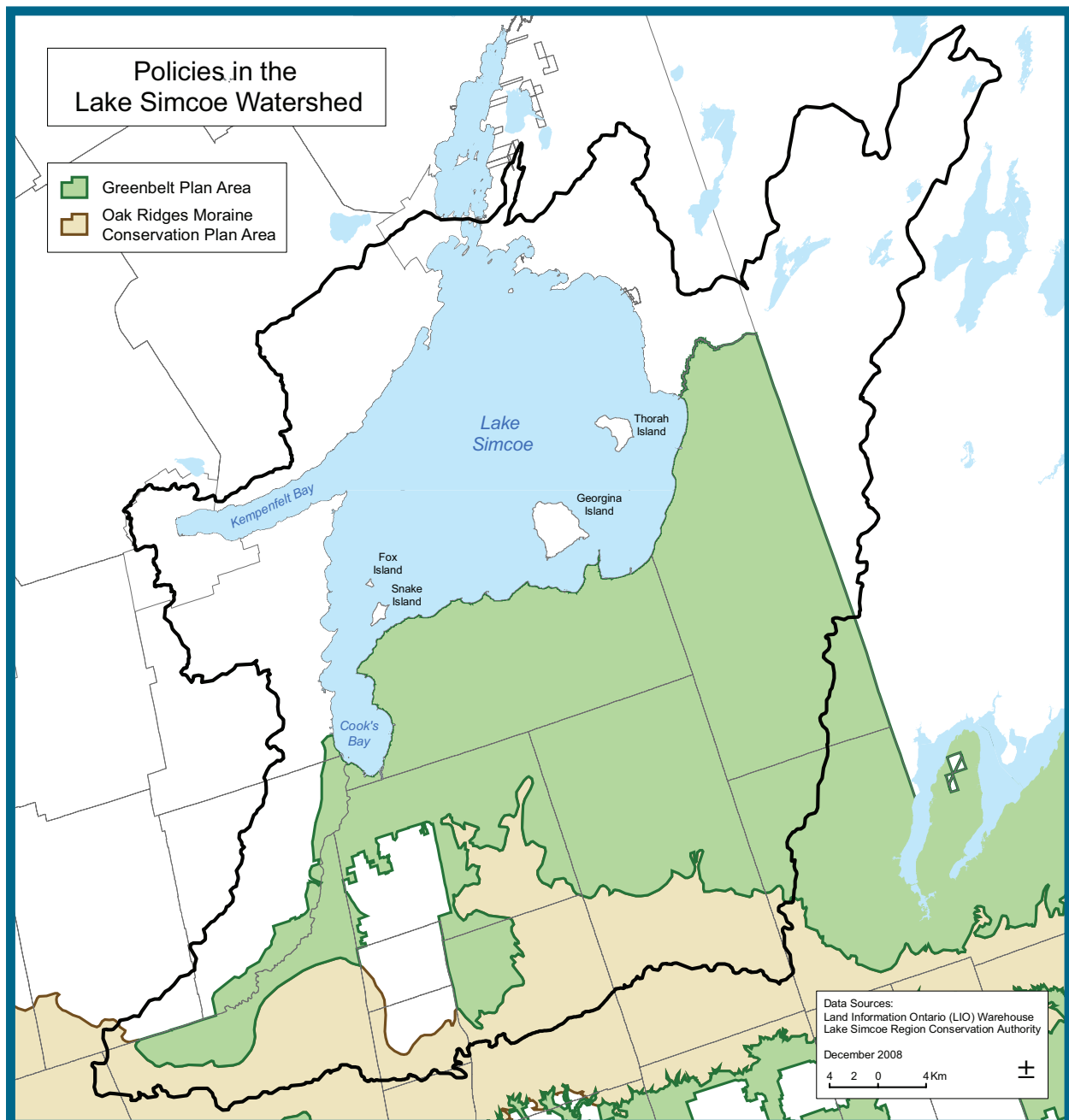
Typical forest ecology in watershed



Undisturbed shoreline

The *Lake Simcoe watershed* is covered by three main provincial plans or policy statements that address some of the issues relating to the protection of the *Lake Simcoe shoreline* and key natural heritage and key hydrological features. Both the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan have some similar objectives to the Lake Simcoe Protection Plan, but these Plans do not cover the entire watershed. The remainder of the watershed is covered by the Provincial Policy Statement (PPS); however, it is not as prescriptive in the treatment of the shoreline and natural heritage features.

Other legislation, regulations and policies govern certain activities associated with the shoreline and natural heritage features. For instance, the *Public Lands Act* controls activities and uses of Crown land including the bed of the lake. Through the *Conservation Authorities Act* Section 28 (1) Regulations (i.e. Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations) the conservation authorities regulate, through a permitting process, *development* and development-related activities in rivers, stream valleys, *wetlands*, shorelines and hazardous lands



Map of existing Provincial Plans applicable to the Lake Simcoe watershed

(associated with flooding, erosion, dynamic beaches or unstable soil or bedrock) and the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or for changing or interfering in any way with a *wetland*.

This Plan would promote a consistent approach to the protection, enhancement or restoration of the *Lake Simcoe shoreline* and of key natural heritage and hydrologic features throughout the watershed. It would focus on protecting, improving, or restoring those features considered most critical to the overall health of the watershed and address activities in those areas that are considered of particular concern. In this chapter, some of the policies are only applied to areas of the watershed that are outside of the Greenbelt Plan and Oak Ridges Moraine Conservation Plan. The reason for this is to avoid duplication as these plans provide similar protections to those provided by the policies in this chapter.

Protecting or restoring the *Lake Simcoe shoreline*, including both aquatic and terrestrial areas associated with the shoreline, is given particular importance in this Plan. The *Lake Simcoe Science Advisory Committee*, in their report dated October 27, 2008, summarizes the scientific literature and importance of these areas. This report indicates that natural shoreline areas perform multiple functions, including control of run-off and associated nutrients and other pollutants, stabilizing shorelines from erosion, conserving habitats for a disproportionately high number of aquatic and terrestrial species, regulating temperature and microclimate, screening noise and wind, preserving the aesthetic appeal of the landscape and providing recreational opportunities. This Plan seeks to protect or restore vegetated buffer zones along the *lakes* and streams. This will be achieved both through the policies identified in this chapter and through the implementation of the relevant stewardship policies in the Plan. This Plan restricts alteration of the shoreline and areas near the shore, and also restricts buildings, structures and other *development* in these areas.

An ecologically healthy *Lake Simcoe shoreline* and natural heritage system will improve water quality and will better equip the watershed to endure ongoing and future challenges such as *invasive species*, climate change, and land use change.

Key Facts

- Overall, 47 percent of the *Lake Simcoe watershed's* land area (approximately 2800 square kilometres) is currently agricultural. Developed lands, non-agricultural lands and roads make up an estimated 18 percent.
- While approximately 35 percent of the *Lake Simcoe watershed* is under natural cover (*woodlands and wetlands*), much of it exists in a fragmented state and the quality of these as habitats for sensitive elements of *biodiversity* has not been assessed.
- The distribution of natural cover varies across the watershed with a low of 9 percent in the Keswick Creeks subwatershed to a high of 55 percent in the Carthew Bay Creeks subwatershed.
- Although most of the shoreline has been developed, some areas remain in a relatively natural state, mostly in the northeast sector of the lake.
- Activities such as clearing natural vegetation along the shore and building concrete docks and walls – referred to as “shoreline hardening” – have disrupted ecologically and hydrologically important linkages between the land and water.

Targets:

- No further loss of natural shorelines on Lake Simcoe
- Achieve a greater proportion of natural vegetative cover in large *high quality* patches
- Achieve a minimum 40 percent *high quality* natural vegetative cover in the watershed
- Achieve protection of *wetlands*
- Achieve naturalized *riparian areas* on Lake Simcoe and along streams
- Restore natural areas or features
- Achieve increased ecological health based on the status of indicator species and maintenance of natural *biodiversity*

Indicators:

- Change over time in the proportion of land in *wetland*, forested *valleyland*, natural riparian and upland forest taking into account habitat quality
- The degree of fragmentation of *wetland*, forested *valleyland*, riparian and upland forest
- The integrity of natural shoreline, i.e. the amount of shoreline that is either undeveloped or maintained in a naturalized state
- Change over time in the status of key biological *indicators*, including species of conservation concern
- Integrity of significant recharge areas

Policies:

Lake Simcoe Shoreline

The loss of natural shoreline areas along Lake Simcoe has impaired the shoreline's ability to perform multiple functions, including control of run-off and associated nutrients and other pollutants, stabilizing shorelines from erosion and conserving habitats. The following policies apply to *Lake Simcoe's shoreline*.

- 6.1-DP** Subject to the other policies of the Plan, *development* or *site alteration* outside of *existing settlement areas* is not permitted in Lake Simcoe and within a related vegetation protection zone referred to in policy 6.2, except in relation to the following:
- a. Forest, fish, and wildlife management;
 - b. Stewardship, conservation, restoration and remediation undertakings;
 - c. *Existing uses* as set out in policy 6.45;
 - d. Flood or erosion control projects but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered;
 - e. Retrofits of existing *stormwater management works* (i.e. improving the provision of stormwater services to existing *development* in the watershed where no feasible alternative exists) but does not include the establishment of new *stormwater management works*;

- f. *Infrastructure*, but only if the need for the project has been demonstrated through an Environmental Assessment or other similar environmental approval and there is no reasonable alternative; and
- g. Low-intensity recreational uses including access to the Lake that require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:
 - i. non-motorized trail use;
 - ii. natural heritage appreciation;
 - iii. unserviced camping on public and institutional land; and
 - iv. accessory uses to existing buildings or structures.

6.2-DP The minimum vegetation protection zone in a *shoreline built-up area* is 30 metres from the *Lake Simcoe shoreline*, or larger if determined appropriate by an evaluation required by policy 6.3. The vegetation protection zone for the remaining *Lake Simcoe shoreline*, outside of *existing settlement areas* and outside of *shoreline built-up areas*, is 100 metres from the *Lake Simcoe shoreline*.

6.3-DP Within *shoreline built-up areas*, an application for *development* or *site alteration* within 120 metres of the *Lake Simcoe shoreline* shall be accompanied by a natural heritage evaluation that satisfies the requirements of policy 6.26, unless the *development* or *site alteration* is for a purpose specified by policy 6.1.

6.4-DP Subject to the other policies in this Plan, structures shall only be permitted in a vegetation protection zone along the *Lake Simcoe shoreline* if:

- a. there is no alternative but to place the structure in this area and the area occupied by such structures is minimized;
- b. the ecological function of the vegetation protection zone is maintained; and
- c. pervious materials and designs are used to the extent feasible.

6.5-DP Outside of *existing settlement areas*, a proposal for *development* or *site alteration* within 240 metres of the *Lake Simcoe shoreline* must demonstrate that the *development* or *site alteration* will maintain and, to the extent feasible, enhance or restore functional wildlife movement corridors between any key natural heritage feature or key hydrologic features identified in policies 6.21 and 6.22 that is located along the *Lake Simcoe shoreline* and from the *Lake Simcoe shoreline* to another key natural heritage feature or key hydrologic feature within 240 metres of the *Lake Simcoe shoreline*.

6.6-DP Subject to the other policies in this Plan, a *shoreline built-up area* may only be expanded to provide for minor rounding out of the area, and only in accordance with provincial plans and the PPS.

6.7-DP Significant alteration of the shore of Lake Simcoe or the shore of a fresh water estuary of a stream connected to Lake Simcoe is not permitted unless the significant alteration is for the purpose of stabilizing, protecting, restoring or rehabilitating the shore or the alteration will be undertaken by a public body and the project is consistent with the objectives of this Plan. A significant alteration of the shoreline includes any alteration that has an *adverse effect* on the *ecological functions* of the shoreline.

Policies Applying to Both Lake Simcoe and Streams

Alterations to the *Lake Simcoe shoreline* as well as to *permanent* and *intermittent streams* has resulted in fragmentation of natural areas, degradation of water quality and negative impacts to fish and wildlife habitat. The following policies apply to *Lake Simcoe's shoreline* and to the streams within the watershed.

6.8-DP No structures, including boathouses, shall be permitted in Lake Simcoe, other *lakes* or in a *permanent or intermittent stream* if the structure impedes the natural flow of water along the shoreline or in the stream, if the structure is intended to be used as a dwelling, or if the structure or its construction harmfully alters *fish habitat*. This policy does not prohibit drainage works such as those permitted under the *Drainage Act*, those required for *infrastructure* or those structures required for the purposes of stewardship, conservation, restoration or remediation undertakings.

6.9-DP The alteration of the shore of Lake Simcoe, other *lakes* or any *permanent or intermittent stream* for the purpose of establishing or altering drainage works such as those works under the *Drainage Act*, *infrastructure* or for stabilization, erosion control or protection purposes shall only be permitted if it is demonstrated that natural shoreline treatments (e.g. planting of natural vegetation, *bioengineering*) that maintain the natural contour of the shoreline will be used where practical, and a vegetative *riparian area* will be established to the extent feasible. In relation of such works, lands used for agricultural purposes do not require the establishment of a vegetative *riparian area* if the land is, and will continue to be, used for agricultural purposes.

6.10-DP Where, in accordance with the policies of the Plan, *development* or *site alteration* is permitted within 120 metres of the *Lake Simcoe shoreline*, other *lakes* in the *Lake Simcoe watershed*, or any *permanent or intermittent stream* or a *wetland*, the *development* or *site alteration* should be integrated with and should not constrain ongoing or planned stewardship and remediation efforts.

6.11-DP Where, in accordance with the policies of this Plan, a proposal for *development* or *site alteration* is permitted within 30 metres of the *Lake Simcoe shoreline*, other *lakes* in the *Lake Simcoe watershed*, or a *permanent or intermittent stream* or *wetland* outside of settlement areas and the Greenbelt area and Oak Ridges Moraine area, the proposal for *development* or *site alteration* shall comply with the following where applicable:

- a. maintain, and where possible, increase or improve *fish habitat* in the Lake, stream or *wetland*, and any adjacent *riparian areas*;
- b. to the extent possible, enhance the ecological features and functions associated with the Lake, stream or *wetland*;
- c. minimize erosion, sedimentation, and the introduction of excessive nutrients or other pollutants and utilize planning, design, and construction practices that maintain and improve water quality; and
- d. integrate landscaping and habitat restoration into the design of the proposal to enhance the ability of native plants and animals to use the area as both *wildlife habitat* and a movement corridor.

6.12-SA Within three years of the date the Plan comes into effect, the MNR, MOE and the LSRCA, in collaboration with the First Nations and Métis communities, other ministries and municipalities

will develop a shoreline management strategy that, for various reaches of the shoreline, identifies ecological values, best management practices, standards, guidelines, and priority areas for restoration, securement and acquisition.

6.13-DP Upon completion of the shoreline management strategy, municipal official plans shall be amended to ensure they are consistent with the recommendations of the strategy.

6.14-SA Public bodies are encouraged to actively re-naturalize public areas adjacent to shorelines and streams to a minimum of 30 metres where practical and feasible.

6.15-SA Through the implementation of the stewardship, education and outreach policies (8.5-8.11) owners of existing cottages and residences will be encouraged to re-naturalize shorelines and areas adjacent to streams up to 30 metres where practical and feasible.

Proposed Shoreline Regulation

Under the *Lake Simcoe Protection Act, 2008* the government may make regulations to regulate or prohibit activities that may adversely affect the ecological health of the *Lake Simcoe watershed*. The following policies provide direction for proposed regulations.

6.16-SA Within one year of the date the Plan comes into effect, the MOE, in collaboration with the MNR, other ministries and regulatory agencies will release for consultation proposed draft regulations under section 26 of the *Lake Simcoe Protection Act, 2008* based on further advice from the *Lake Simcoe Science Committee*. These regulations will build on and are not intended to duplicate existing legislation and regulations that apply to the shoreline areas including the *Conservation Authorities Act*, *Lakes and Rivers Improvement Act* and the *Public Lands Act*.

6.17-SA The area to which the shoreline regulation proposed under policy 6.16 would apply includes the *littoral zone*, the *riparian area*, on-land areas beyond *riparian areas* and *wetlands* where an activity may affect *ecological functions*. This regulated area must be described in the Plan once the regulation is made.

6.18-SA The proposed regulation under policy 6.16 may address the following:

- a. the use of fertilizer use for non agricultural lands such that the water quality of *lakes* and streams is not affected;
- b. activities that contribute to the spread of *invasive species*;
- c. peat extraction in all *wetlands* in the watershed;
- d. the filling or draining of existing *wetlands* except as related to *mineral aggregate operations* or *existing settlement areas* where the regulation would only apply to those wetlands of provincial significance, and in relation to existing agricultural operations (e.g. Holland Marsh);
- e. removal of vegetation and coarse woody debris would not be permitted within shoreline areas, with some exceptions, to protect existing natural areas adjacent to shorelines and to retain vegetated buffers consistent with those required by *development* or *site alteration* policies (e.g. 30 metre minimum vegetation protection zone on either side of a *permanent or intermittent stream*); and
- f. other issues identified through research and consultations.

6.19-SA Within one year of the date the Plan comes into effect, the LSRCA and MNR will delineate the areas outside of its jurisdiction, but within the *Lake Simcoe watershed*, for the purpose of consistently applying Ontario Regulation 179/06 (Lake Simcoe Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) made under section 28 of *Conservation Authorities Act* to *development* along watercourses within the *Lake Simcoe Watershed*. Within this same period, the LSRCA and MNR will prepare a regulation to include these areas within the regulated area.

Key Natural Heritage and Key Hydrologic Features

Key natural heritage and key hydrologic features contribute to the ecological health of the watershed. The following policies apply to key natural heritage and key hydrologic features.

6.20-DP Policies 6.20 – 6.29 apply to those areas outside of *existing settlement areas* and outside of the Greenbelt area and Oak Ridges Moraine area.

6.21-DP Key natural heritage features are *wetlands, significant woodlands, significant valleylands*, and natural areas abutting Lake Simcoe.

6.22-DP Key hydrologic features are *wetlands, permanent and intermittent streams*, and *lakes* other than Lake Simcoe.

6.23-DP *Development or site alteration* is not permitted within a key natural heritage feature, a key hydrologic feature and within a related vegetation protection zone referred to in policy 6.24, except in relation to the following:

- a. Forest, fish, and wildlife management;
- b. Stewardship, conservation, restoration and remediation undertakings;
- c. *Existing uses* as specified in policy 6.45;
- d. Flood or erosion control projects but only if the projects have been demonstrated to be necessary in the public interest after all alternatives have been considered;
- e. Retrofits of existing *stormwater management works* (i.e. improving the provision of stormwater services to existing *development* in the watershed where no feasible alternative exists) but not new *stormwater management works*;
- f. New *mineral aggregate operations* and wayside pits and quarries pursuant to policies 6.41 – 6.44;
- g. *Infrastructure*, but only if the need for the project has been demonstrated through an Environmental Assessment of other similar environmental approval and there is no reasonable alternative; and
- h. Low-intensity recreational uses that require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:
 - i. non-motorized trail use;
 - ii. natural heritage appreciation;
 - iii. unserviced camping on public and institutional land; and
 - iv. accessory uses to existing buildings or structures.

- 6.24-DP** The minimum vegetation protection zone for all key natural heritage features and key hydrologic features is the area within 30 metres of the key natural heritage feature and key hydrologic feature, or larger if determined appropriate by an evaluation required by policy 6.25.
- 6.25-DP** An application for *development* or *site alteration* within 120 metres of a key natural heritage feature or key hydrologic feature shall be accompanied by a natural heritage evaluation meeting the requirements of policy 6.26, unless the *development* or *site alteration* is for a purpose specified by policy 6.23.
- 6.26-DP** A natural heritage evaluation referred to in policies 6.3 and 6.25 shall be carried out in accordance with guidelines developed by the MNR and shall:
- demonstrate that the *development* or *site alteration* applied for will have no *adverse effects* on the key natural heritage feature, key hydrologic feature, Lake Simcoe and its associated vegetation protection zone, or on the related *ecological functions*;
 - identify planning, design and construction practices that will maintain and, where feasible, improve or restore the health, diversity and size of the key natural heritage feature or key hydrologic feature and its *connectivity* with other key natural heritage features or key hydrologic features as well as *connectivity* and linkages to natural heritage systems identified in Provincial Plans or by municipalities, the LSRCA or MNR;
 - demonstrate how *connectivity* within and between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction to allow for the effective dispersal and movement of plants and animals;
 - determine if the minimum vegetation protection zone is sufficient to protect the *ecological functions* of the feature and the area being evaluated, in particular where this feature or area is adjacent to a coldwater stream, headwaters, freshwater estuaries, steep slope or is acting as or has been identified as a wildlife corridor to ensure that the area will continue to effectively act and function as a wildlife corridor;
 - determine if the minimum vegetation protection zone is sufficient to protect areas adjacent to existing features that would be appropriate for restoration or renaturalization to enhance the ecological functioning of that feature, such as lands that provide for rounding out or filling of gaps in *significant woodlands*; and
 - if the minimum vegetation protection zone is not sufficient to protect the function of the feature or protect opportunities for feature enhancement, specify the dimensions of the required vegetation protection zone.
- 6.27-DP** A proposal for new *development* or *site alteration* within 120 metres of the *Lake Simcoe shoreline*, a key natural heritage feature or a key hydrologic feature shall provide for the establishment and maintenance of *natural self-sustaining vegetation* to the extent and width of the associated vegetation protection zone required by the policies in this Chapter, except in relation to uses and structures in the vegetation protection zone that are permitted by the policies of this Chapter.

- 6.28-DP** Where, through an application for *development* or *site alteration*, a buffer or vegetation protection zone is required to be established as a result of the application of the policies in this Plan, the buffer or vegetation protection zone shall be composed of and maintained as *natural self-sustaining vegetation*.
- 6.29-DP** If the *natural self-sustaining vegetation* is removed along the *Lake Simcoe shoreline*, from a key natural heritage feature, a key hydrologic feature or from any related vegetation protection zone, as a result of any *development* or *site alteration* permitted under policies 6.1, 6.23, 6.43 and 6.45, the *natural self-sustaining vegetation* shall be re-established to the extent feasible following completion of that activity.
- 6.30-SA** Within one year of the date the Plan comes into effect the MNR, in collaboration with the LSRCA, MOE and other ministries will further define the key natural heritage and key hydrologic features as described in policies 6.21 and 6.22.
- 6.31-SA** Within one year of the date the Plan comes into effect, the MNR and the MOE, in collaboration with other ministries, the First Nations and Métis communities and the LSRCA, will map natural areas abutting Lake Simcoe as described in policy 6.21.

Settlement Areas

Settlement areas are urban areas and rural settlement areas (e.g. cities, towns, villages and hamlets) where development is concentrated and lands are designated in municipal official plans for development over the long term. The following policies apply to those *settlement areas* designated in official plans as they existed on the date the Plan came into effect and to *settlement area* expansions.

- 6.32-DP** Policies 6.32 - 6.34 apply to *existing settlement areas* and areas of Lake Simcoe adjacent to these lands, including the *littoral zone*, and these areas are not subject to policies 6.1 – 6.3, 6.5, 6.11 and policies 6.20 - 6.29.
- 6.33-DP** An application for *development* or *site alteration* shall, where applicable:
- increase or improve *fish habitat* in streams, *lakes* and *wetlands*, and any adjacent *riparian areas*;
 - include landscaping and habitat restoration that increase the ability of native plants and animals to use *valleylands* or *riparian areas* as *wildlife habitat* and movement corridors;
 - seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, *lakes* and *wetlands*; and
 - establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.
- 6.34-DP** Where, through an application for *development* or *site alteration*, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as *natural self-sustaining vegetation*.
- 6.35-DP** For greater certainty, where lands have been incorporated into a *settlement area* after the effective date of the Plan, an application for *development* or *site alteration* within those lands are subject to the policies in this Chapter other than policies 6.32 to 6.34.

Recharge Areas

The following policies are intended to build on the policies and efforts associated with the PPS and drinking water source protection through the *Clean Water Act, 2006* to help identify and protect significant groundwater recharge areas.

- 6.36-DP** A significant groundwater recharge area is an area identified,
- as a significant groundwater recharge area by any public body for the purposes of implementing the PPS;
 - as a significant groundwater recharge area in the assessment report required under the *Clean Water Act, 2006* for the Lake Simcoe and Couchiching/Black River Source Protection Area; or
 - by the LSRCA in partnership with MOE and MNR as an ecologically significant groundwater recharge area in accordance with the guidelines developed under policy 6.37.
- 6.37-SA** MOE and MNR, in collaboration with LSRCA, municipalities and other ministries will develop guidance associated with protecting, improving or restoring significant groundwater recharge areas, including defining ecologically-significant groundwater recharge areas.
- 6.38-DP** Once identified, municipalities shall incorporate significant groundwater recharge areas into their official plans together with policies to protect, improve or restore the quality and quantity of groundwater in these areas and the function of the recharge areas.
- 6.39-DP** Outside of the Oak Ridges Moraine area, urban *settlement area* expansions should avoid significant groundwater recharge areas.
- 6.40-DP** Outside of the Oak Ridges Moraine area, an application for *major development* within a significant groundwater recharge area shall be accompanied by an environmental impact study that demonstrates that the quality and quantity of groundwater in these areas and the function of the recharge areas will be protected, improved or restored.

Mineral Aggregate Operations and Wayside Pits and Quarries

The following policies apply to applications for new *mineral aggregate operations* and wayside pits and quarries.

- 6.41-DP** Policies 6.41 -6.44 apply to applications for new *mineral aggregate operations* and wayside pits and quarries that are outside of the Greenbelt area and the Oak Ridges Moraine area.
- 6.42-DP** No new *mineral aggregate operations* and no wayside pits and quarries, or any ancillary or accessory use thereto shall be permitted in the following key natural heritage features and key hydrologic features:
- significant wetlands*;
 - significant habitat of endangered species and threatened species*; and
 - significant woodlands* unless the woodland is occupied by young plantation or early successional habitat (as defined by the MNR).

6.43-DP An application for a new *mineral aggregate operation* or a new wayside pit or quarry may only be permitted in a key natural heritage feature, a key hydrologic feature or its related vegetation protection zone, other than a feature mentioned in policy 6.42, where the application demonstrates the following:

- a. the health, diversity and size of these key natural heritage features will be maintained or restored and, to the extent possible, improved to promote a net gain of ecological health; and
- b. any permitted extraction of mineral aggregates that occurs in a feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation.

6.44-DP Every application for a new *mineral aggregate operation* must demonstrate:

- a. how the *connectivity* between key natural heritage features and key hydrologic features will be maintained before, during and after the extraction of mineral aggregates; and
- b. how the operator could immediately replace or restore any habitat that would be lost from the site with equivalent habitat on another part of the site or on adjacent lands.

Existing Uses

The following policies apply to *existing uses*, accessory uses and structures.

6.45-DP Where a policy in this Chapter permits *development* or *site alteration* in relation to *existing uses*, the following policies apply:

- a. All *existing uses* lawfully used for such purposes on the day before the Lake Simcoe Protection Plan comes into force are permitted;
- b. The construction of a building on an existing lot of record is permitted, provided it was zoned for such as of the date the Plan comes into effect, or where an application for an amendment to a zoning by-law is required as a condition of a severance granted prior the date this Plan comes into effect;
- c. The *development* permitted in b., expansion to existing buildings or structures, accessory structures and uses, and conversions of legally *existing uses* which bring the use more into conformity with this Plan are permitted subject to a demonstration that the use does not expand into a key natural heritage feature, a key hydrologic feature and any minimum vegetation protection zone associated with a feature or the *Lake Simcoe shoreline*, unless there is no alternative in which case any expansion shall be limited in scope and kept within close geographical proximity to the existing structure;
- d. The *expansion* to existing agricultural buildings and structures, residential dwellings and accessory uses to both, may be considered within a key natural heritage feature, a key hydrologic feature, and any minimum vegetation protection zone associated with these features or the *Lake Simcoe shoreline*, if it is demonstrated that:
 - i. there is no alternative to the expansion or alteration and the expansion or alteration is directed away from the feature and vegetation protection zone to the maximum extent possible, and,

- ii. the impact of the expansion or alteration on the feature and its functions is minimized to the maximum extent possible.
- e. Expansion, maintenance or replacement of existing *infrastructure* is permitted.

Site Alteration and Tree Cutting Bylaws

The following policy provides direction for the development of a template for tree cutting and site alteration bylaws by the provincial government.

- 6.46-SA** Within two years of the date the Plan comes into effect, the MNR and MOE, in consultation with other ministries, municipalities and the LSRCA will lead the development of a template for municipal site alteration and tree cutting bylaws within the watershed as related to natural heritage features including *wetlands* and *woodlands*, and following development will encourage implementation of such a bylaw.

Natural Areas Protection, Improvement and Enhancement

The following policies set out direction for the provincial government to take a strategic approach to stewardship, restoration and/or enhancement of natural areas, including monitoring of these efforts using an adaptive management approach.

- 6.47-SA** Within two years of the date the Plan comes into effect, the MNR and the LSRCA in collaboration with MOE other Ministries, the First Nations and Métis communities and municipalities, will delineate priority areas for *riparian area* restoration and other areas to focus natural heritage protection, improvement, restoration, securement and enhancement efforts including the definition or delineation of important corridors and linkages. The delineation will build on existing natural heritage systems identified by the Province, the LSRCA and municipalities within the *Lake Simcoe watershed* and identified anchor sites (*high quality* connected natural features) to support the development of a comprehensive stewardship strategy throughout the watershed.
- 6.48-SA** Within two years of the date the Plan comes into effect, the MNR in collaboration with the LSRCA, First Nations and Métis communities, will identify and map areas of *high quality* natural cover that are 25 hectares or greater.
- 6.49-SA** Within one year of the date the Plan comes into effect, the MNR, the MOE, and the LSRCA, in collaboration with the First Nations and Métis communities, and other ministries, will identify stressed subwatersheds or portions of stressed subwatersheds.
- 6.50-M** Within one year of the date the Plan comes into effect, the MNR, the LSRCA and the MOE will develop a monitoring program in relation to the targets and *indicators* associated with natural heritage and hydrologic features and areas. The monitoring program shall be based on an adaptive management approach and may be altered from time to time to respond to changing environmental conditions (including climate change), new information and to changing management needs. The components of the monitoring program may include monitoring changes in the proportion of natural cover in the watershed, for example as a result of the implementation of the Plan policies including stewardship initiatives, and monitoring biological indicators that provide inference on the ecological health of the *Lake Simcoe watershed*. Once the monitoring program is developed, the MNR, LSRCA and MOE shall implement the program.



Chapter 7

Other Threats and Activities

chapter seven

NEWLY INTRODUCED INVASIVE SPECIES

CONTEXT

Many aquatic and terrestrial species within the Lake Simcoe ecosystem are newly introduced to the lake or the watershed. To be considered *invasive species*, however, they would have to be species that are not native to the *Lake Simcoe watershed*, that are spread by human activity and that threaten the environment, economy or society.

The spread of *invasive species* causes a reduction in abundance of native species, is a leading cause of species becoming at risk of extinction and disrupts nutrient and energy cycles. Native coldwater fish species are particularly at risk from an invasion by non-native species.

Invasive species can also have a significant impact to the economy, including loss of revenue related to natural resources, as well as increased costs for monitoring and for maintaining facilities.

Most *invasive species* are introduced unintentionally, often due to a lack of public awareness about the environmental damage they cause. Aquatic species may arrive in the *Lake Simcoe watershed* attached to boats, boat trailers, fishing gear used in other waters or moving through the Trent-Severn Waterway, via the release or escape of live bait fish captured outside the watershed, by escaping from holding ponds in the floodplain, and due to people emptying the contents of aquariums into natural waterways. Terrestrial species including plants, animals, insects and diseases may be introduced through ornamental gardening, by moving firewood (e.g., emerald ash borer) or through the transfer of seeds in the treads of hiking boots and bicycle tires.

Once they become established, *invasive species* are difficult and costly to eradicate. When prevention fails, early detection is extremely important



Hogweed



Zebra mussels



Rusty Crayfish

so that steps can be taken to understand their potential impact, eradicate or contain the *invasive species*, or mitigate its impacts. Local watershed monitoring programs are well established and have a record of early detection when it comes to aquatic invaders. Similarly, regular aquatic monitoring programs (including fish diseases) exist in adjacent watersheds and the Great Lakes. On the other hand, there is very limited monitoring in place for terrestrial invaders and consequently little is known about their incidence, distribution or impact in the *Lake Simcoe watershed*.

The range of *invasive species* continues to expand and this expansion may increase with climate change. In addition, the introduction and spread of *invasive species* will probably have a greater threat in Ontario as Ontario makes up a significant portion of Canada's population (39%). In Canada the estimated annual cumulative lost revenue caused by the impacts of only 16 *invasive species* in its forests, fields and waters is estimated to be between 13.3 to 34.5 billion dollars.

Policies and programs are emerging at local, provincial and federal levels to help manage the threat from *invasive species*. At the present time however, the regulatory tools available for controlling high-risk human pathways are limited in scope.

In the interim, in collaboration with stakeholders and partner organizations, the Plan would focus on policies and programs for both terrestrial and aquatic species:

- using public education, outreach and stewardship to prevent the introduction of new *invasive species*;
- evaluating and mitigating the potential high-risk pathways;
- building a more coordinated and comprehensive approach for monitoring and responding to *invasive species* in the *Lake Simcoe watershed*; and
- using available regulatory tools to address high-risk pathways.

The use of live bait has a long history in the tradition of fishing. It is important to generations of anglers and provides benefits to the local economy. Baitfish are managed as a sustainable resource. However, angler use and movement of live bait is considered to pose a high risk to the introduction of *invasive species*:

- A number of species have been introduced to Lake Simcoe that were present in Lake Erie and it is suspected movement of live bait introduced these species to Lake Simcoe;
- Surveys show that a high percentage of anglers purchase their bait, move it long distances, and more than 20% release it into the lake where they are fishing at the end of the day despite the fact that it is illegal;
- A number of initiatives (regulatory and best management practices) have been implemented province-wide to reduce the risk of movement of *invasive species* in the commercial harvest and sale of live bait. To date, although there has been extensive effort to raise awareness in the angling community, little has been done to restrict the movement of live bait by anglers.

Through the Plan, a regulatory proposal will be developed to help prevent the introduction of new *invasive species* into the *Lake Simcoe watershed* through angler movement of live bait.

Also, the policies 6.16 and 6.17 in Chapter 6 of the Plan, Shorelines and Natural Heritage identify the development of a regulation pursuant to Section 26 of the Lake Simcoe Protection Act, 2008 that may include measures to control the spread of *invasive species*.

Key Facts

- *Invasive species* known to be in Lake Simcoe and their date of introduction:
 - common carp – 1896
 - rainbow smelt – 1962
 - Eurasian watermilfoil – 1984
 - curly-leaf pondweed – 1961-1984
 - black crappie – 1987
 - zebra mussel – early 1990s
 - spiny water flea – 1993
 - bluegill – 2000
 - quagga mussel – 2004
 - rusty crayfish – 2004
 - Eurasian amphipod, *Echinogammarus ischus* – pre-2005
 - round goby – 2006
- Records of when terrestrial invaders arrived and their distribution are sparse largely due to limited monitoring and reporting. Terrestrial *invasive species* known to be in the *Lake Simcoe watershed* include, Giant hogweed, Japanese knotweed, Dog-strangling vine, Garlic Mustard and Common reed.
- These species can cause damaging effects to natural heritage features, species biodiversity and may indirectly affect water quality through their impact on watershed vegetation.
- 34 percent of vascular plants found in Ontario are introduced.
- In less than 10 years, zebra mussels have significantly reduced the natural populations of mussels and clams in Lake Simcoe and have had a broad system-wide impact, affecting many other species.
- Next to habitat loss, *invasive species* are the leading cause of species becoming at risk of extinction.
- Some of the more common pathways include recreational boating, aquarium, water garden and horticulture trades, live food fish trade, and movement of live bait for fishing.
- Since the opening of the St. Lawrence Seaway in 1959, ballast water discharge has accounted for 65% of species introduced to the Great Lakes. The risk of introduction has been greatly reduced by recent regulations enacted by Transport Canada in 2006 and the U.S. and Canadian St. Lawrence Seaway Commissions in 2008 requiring all vessels to exchange ballast water on the open ocean so that the salt water kills freshwater organisms in the tanks. Compliance monitoring is done on 100% of ships to ensure that no ship is allowed to enter the Great Lakes without adequate precautions being taken.
- The bait industry supports implementation of Hazard Analysis and Critical Control Point training for all harvesters and dealers to ensure that actions are identified at critical control points to prevent the spread of *invasive species*. Hazard Analysis and Critical Control Point plans are approved by MNR and license conditions applied accordingly for all commercial bait operators.
- Since 1992, MNR and the Ontario Federation of Anglers and Hunters (OFAH) have worked in partnership to raise awareness and monitor the distribution of *invasive species*. A toll-free hotline to access information and report sightings, school curriculum activities, interactive website (www.invadingspecies.com), displays and presentations at events, and volunteer monitoring programs are just some of the effective initiatives undertaken. Through this partnership, over 300 partners have become involved in the program.

Target:

- Prevent new *invasive species*

Indicator:

- Presence of newly introduced species

Policies:

- 7.1-SA** The MNR in partnership and collaboration with other ministries, the First Nations and Métis communities, the OFAH, the LSRCA and other stakeholders will deliver information and education programs annually for the general public and key stakeholders on how to prevent the spread of, and how to detect, aquatic and terrestrial *invasive species*. Some of the more common pathways include recreational boating, aquarium, water garden and horticulture trades, live food fish trade, and movement of live bait for fishing. Stewardship actions which help identify and respond to *invasive species* will be incorporated into broader stewardship programming developed under this Plan and into existing stewardship initiatives.
- 7.2-SA** Within two years of the date the Plan comes into effect, the MNR, and the OFAH, and LSRCA, in collaboration with the First Nations and Métis communities, local tourism organizations and fishing-related businesses, will conduct a community based social marketing project. The project will identify effective methods to engage stakeholders for the purpose of modifying their behaviour to reduce the introduction and spread of *invasive species* in the *Lake Simcoe watershed*.
- 7.3-SA** Within three years of the date the Plan comes into effect, the MNR, in collaboration with First Nations and Métis communities, and with angler organizations, the commercial bait industry and other stakeholder interests, will develop a regulatory proposal that would require anglers who are fishing with live bait in the *Lake Simcoe watershed* to only use live bait caught in the watershed. The regulatory proposal would be subject to public consultation before MNR proceeds with the proposal and makes a recommendation to the Federal Government to consider a regulation under the Federal Fisheries Act¹. The regulatory approach would help to mitigate the risk of *invasive species* entering the watershed.

In developing the regulatory proposal, consideration will be given to matters, including:

- a. new science related to *invasive species* and pathways;
- b. types of live bait used (e.g. bait fish, leeches);
- c. sustainability of bait resources; and
- d. simplicity, effectiveness, communication and enforcement.

¹ This proposed regulation would fall under provincial and federal laws.

- 7.4-SA** Within one year of the date of the Plan comes into effect, the MNR will develop a prioritized watch list of aquatic and terrestrial *invasive species* (including fish and wildlife diseases and insect pests) likely to be introduced to the *Lake Simcoe watershed*. And, within five years of the date the Plan comes into effect, the MNR in collaboration with other public bodies will develop and implement response plans to *invasive species* present in the watershed and on the watch list. The compilation of the watch list and the preparation of the response plans will be risk-based with response plans for highest priority species being prepared first. Response plans will identify the resource requirements, partnership roles and funding mechanisms to implement the plans. The watch list and the response plans will be updated from time to time.
- 7.5-SA** Within two years of the date the Plan comes into effect, the MNR will work with Parks Canada and other public bodies to complete a study to evaluate the potential risk of movement of *invasive species* through the Trent-Severn Waterway resulting from natural dispersal and boat traffic. The MNR will release to the public a summary of the study's findings.
- 7.6-SA** Within two years of the date the Plan comes into effect, the MNR will evaluate and report on the extent of the live food fish trade in the *Lake Simcoe watershed* and, if warranted, evaluate the level of risk associated with the practice and determine appropriate management options.
- 7.7-SA** Within six years of the date the Plan comes into effect, the MNR in collaboration with the LSRCA will evaluate and report on the level of risk related to ponds in the floodplain contributing to the spread of *invasive species*, including baitfish holding ponds, private water gardens, and holding ponds associated with the water garden trade that may be holding fish, plants and invertebrates. If the identified risk warrants further action, in subsequent years the MNR will develop a facility risk assessment/security policy.
- 7.8-SA** Commencing in the third year of the Plan, the MNR, in partnership with the OFAH will develop and implement a three-year mobile boat wash program to increase awareness of best management practices for boaters and encourage improved behaviour by boaters.
- 7.9-SA** The MNR will annually review existing provincial science funding programs and partnerships to identify opportunities for research funding and partnerships that will help improve knowledge related to the impact and control of *invasive species* in the *Lake Simcoe watershed*.
- 7.10-M** Within the first year of the Plan, the MNR, in collaboration with other ministries, the First Nations and Métis communities, the LSRCA, the OFAH and other NGOs, shall develop and implement an annual monitoring program for terrestrial *invasive species* (including pests/ wildlife diseases) in the *Lake Simcoe watershed* that will facilitate early detection and response and help inform and adapt public education, outreach, and stewardship programming.

CLIMATE CHANGE

CONTEXT

As a result of global warming and climate change, scientists predict that average temperatures in southern Ontario could rise by as much as two to four degrees Celsius over the next 40 years.

Climate change is expected to influence, directly and indirectly, all elements of the *Lake Simcoe watershed*, including water quality and quantity, aquatic ecosystems, and natural areas and shorelines. In fact, studies have already indicated that climate change has shortened the duration of ice cover on the lake. This has in turn shortened the ice fishing season, a major winter recreational activity. That said, the specific effects of climate change remain uncertain, particularly at the local level. How Lake Simcoe will be affected and how it will respond is not well understood.

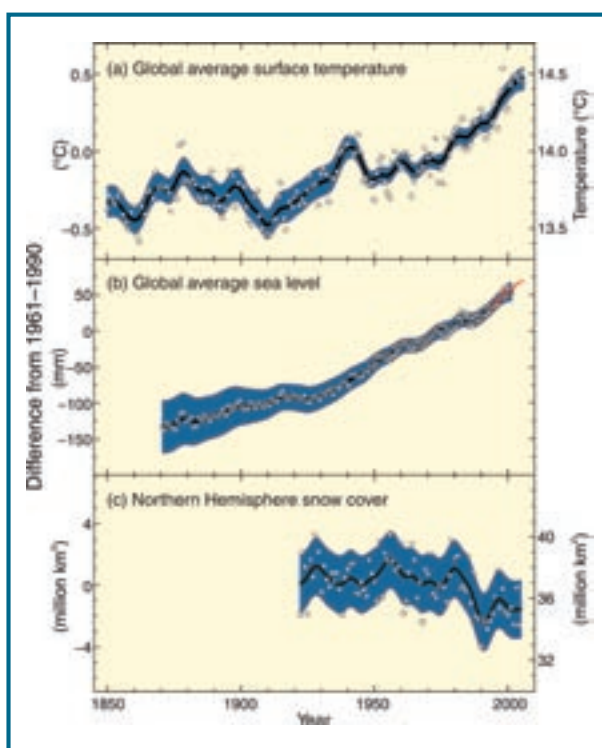
The Plan builds on work already underway. A number of existing tools and mechanisms provide for action on climate change in the *Lake Simcoe watershed* and Ontario more broadly - many of these are articulated in the Province's Climate Change Action Plan.

Mitigation

Ontario's Climate Change Action Plan - Creating Our Sustainable Future sets out Ontario's aggressive targets for reducing greenhouse gas emissions by 6 per cent below 1990 levels by 2014; 15 per cent below 1990 levels by 2020; and 80 per cent below 1990 levels by 2050. The Action Plan outlines key initiatives to meet these targets, including ongoing investments in public transit, phasing out coal-fired power generation, promoting renewable energy, funds to attract green investments and jobs to Ontario, and protecting green space like the boreal forest and Ontario's Greenbelt.

Adaptation

Ontario is also preparing for the impacts of climate change. The Expert Panel on Climate Change Adaptation was appointed by the Minister of the Environment in December 2007 to help the Ontario government, municipalities and Ontarians prepare and plan for the impacts of climate change in areas such as public health, environment, infrastructure and the economy.



Global Effects of Climate Change.
© Intergovernmental Panel on Climate Change 2007

One of the most fundamental and sustainable ways to prepare for a changing climate is to protect the natural resilience of the entire Lake Simcoe ecosystem upon which residents and businesses depend – to improve its capacity to naturally adapt.

Risk assessment and adaptation planning are critical actions for enhancing the watershed’s capacity to naturally adapt to future changes in climate. As a first step, a Lake Simcoe climate change adaptation strategy will help identify the impacts of a changing climate on the watershed and identify opportunities for adaptation.

Climate change can influence the magnitude of existing problems. Some examples of *potential* impacts are cited below:

AREA OF PLAN	POTENTIAL CLIMATE CHANGE IMPACT
Aquatic Life (Chapter 3)	<ul style="list-style-type: none"> • Change in water temperature and supply impacting coldwater fishery and habitat • Change in the seasonal thermal stratification of the lake • Change in the amount of <i>dissolved oxygen</i> impacting aquatic life • Reduced ice cover over shallow waters where fish spawn would expose their eggs to destructive wind and wave action • Loss of seasonal access to fish and wildlife species (e.g. duration of the ice fishing season)
Water Quality (Chapter 4)	<ul style="list-style-type: none"> • Periodic failures of sewage and flood control infrastructure • Increase in phosphorus loading • Increased concentration of contaminants • Increase in wind and flood transportation of nutrients, sediments and contaminants • Drinking water supply, odour and taste problems, as water intakes are subject to weed and algae concentrations
Water Quantity (Chapter 5)	<ul style="list-style-type: none"> • Demand for water potentially exceeding supply in some areas • Changes in ice cover affecting evaporation, lake levels, shoreline erosion, precipitation, seasonality, and lake-effect snow • Reduction in ground water flows • Variation in stream flow regimes and lake levels affect fish, wildlife, aquatic habitats and sediment deposition
Shorelines and Natural Heritage (Chapter 6)	<ul style="list-style-type: none"> • Shift or loss of <i>biodiversity</i> within <i>woodlands</i>, riparian zones and <i>wetlands</i> • Unknown impacts to <i>wetlands</i> and their functions • Change to forest cover and ecosystem functions in watershed • Extreme water events causing drought and flooding, risk of fire • Change in ecosystem composition
Non-Native Invasive Species (Chapter 7)	<ul style="list-style-type: none"> • Change in temperatures, creating environment where <i>invasive species</i> may thrive thereby increasing their presence, abundance and distribution • Increase in aquatic plant growth
Recreational Activities (Chapter 7)	<ul style="list-style-type: none"> • Aesthetic quality of the beaches may be compromised by declining water quality • Change in timing of seasons for <i>recreational activities</i> (e.g., ice fishing, swimming)

In addition to the policies outlined in this Chapter, other policies designed to protect the natural resilience of the ecosystem and to assist with climate change adaptation are incorporated throughout the Plan. These include:

- Developing Aquatic/Fish Community Objectives for Lake Simcoe and its tributaries. These objectives will be used to increase the resilience of Lake Simcoe's aquatic community to impacts of climate change (*see Aquatic Life, Policy 3.1*);
- Conducting research projects on the aquatic communities of Lake Simcoe and its tributaries. The focus of the research will be on filling knowledge gaps and include an evaluation of the impacts of climate change on the fish community (*see Aquatic Life, Policy 3.5*);
- Committing municipalities to prepare and implement comprehensive stormwater management master plans which will consider the potential impacts of climate change on the effectiveness of the stormwater management works (*see Water Quality, Policy 4.5*);
- Promoting, conducting and supporting water quality scientific research projects that build on existing research and monitoring programs, identify emerging issues, and support the overall adaptive management principle. Research will include the assessment of the impacts associated with climate change, and other emerging issues (*see Water Quality, Policy 4.23*);
- Requiring municipalities to prepare water conservation and efficiency plans that consider the potential impacts of climate change (*see Water Quantity, Policy 5.3*); and
- Implementing a monitoring program in relation to the targets and *indicators* associated with natural features and areas. The monitoring plan will also gather information on species that are influenced by climate change (*see Shorelines and Natural Heritage, Policy 6.50*).

Key Facts

- Climate change models analyze historic patterns and project significant changes in future climate.
- There are signs that changes are already underway including more frequent extreme weather, high-velocity wind events, and changes in snowfall patterns and ice-cover on *lakes*.
- On Lake Simcoe, delayed freeze-up and earlier ice-off dates have occurred over the past five decades. In the winter of 2001-2002, a reduction of ice on Lake Simcoe led to the cancellation of the Canadian Ice Fishing Championship and significant loss to the local economy.
- Loss of vegetation cover and milder temperatures may encourage pathogens, which are more common further south, such as Lyme disease (deer ticks), West Nile virus (mosquito), and epidemic typhus (tick).
- It is hypothesized that warming may exacerbate the bioaccumulation of contaminants in lake trout based on a study of 23 North American lakes, including Lake Simcoe.

Indicators:

- Meteorological data (e.g. temperature, ice cover, snow cover)
- Lake thermal structure and heat budget
- Lake hydrodynamics
- River hydrology
- Timing of seasonal processes like fish spawning

Policies:

7.11-SA Within two years of the date the Plan comes into effect, the MOE, in collaboration with the MNR, the MAFRA, the First Nations and Métis communities, the LSRCA, municipalities, and interested academic institutions, will develop a climate change adaptation strategy for the *Lake Simcoe watershed*. The climate change adaptation strategy will identify key recommended adaptation actions needed to increase the resiliency of the *Lake Simcoe watershed* to the impacts of climate change; identify roles and responsibilities for relevant parties; and identify potential amendments to the Plan to ensure the recommended actions are undertaken. As new information becomes available, the strategy will be amended, as necessary.

To support the development and implementation of the strategy, at a minimum, the following tasks will be undertaken by the MOE and collaborators specified above:

- a. assess and evaluate the risk of climate change impacts on the watershed;
- b. promote, conduct and support additional research to better understand the impacts of climate change in the watershed, including impacts on *wetlands*, aquatic life, terrestrial species and ecosystems, headwaters, conservation of life cycles, ground-water temperature, and water table levels;
- c. develop an integrated climate change monitoring program to inform decision making and model the impacts of climate change on the watershed; and
- d. begin the development of climate change adaptation plans and promote the building of a Lake Simcoe watershed community of practice in adaptation planning.

RECREATIONAL ACTIVITIES

CONTEXT

Swimming, camping, fishing, boating, golfing and snowmobiling are just a few activities enjoyed on and around Lake Simcoe. As the population in southern Ontario continues to grow, demand for these activities will increase. *Recreational activities* have the potential to impact water quality, water quantity, aquatic life and the spread of *invasive species*. A major challenge for the Lake Simcoe area is how to continue to provide quality recreational opportunities while minimizing congestion, conflicts between different uses and users, and impacts to the natural environment. Furthermore, climate change could, in future years, also effect our recreational use of the lake, for example, reduced ice cover due to increased temperatures could mean less time available for ice fishing.

There are other challenges. For example, discharges from recreational boats can adversely affect the lake and its tributaries. Recreation facilities, such as marinas and golf courses, also have the potential to impact the lake through accidental spills or stormwater runoff.

Among the programs already in place to help manage these threats is the Clean Marine Program, which aims to reduce pollution from boating activities through voluntary initiatives taken by boaters, marinas, and manufacturers and distributors of marine products. Golf courses in the area can participate in the Audubon Cooperative Sanctuary System, a program that helps golf courses protect the environment. This Plan supports and builds on these initiatives as it works toward achieving environmentally sustainable recreational practices in the *Lake Simcoe watershed*.



Recreational activities on the lake



Clean water is our future

Moving forward, it is important to ensure that people continue to have access to recreation sites around Lake Simcoe. Among other benefits, it is expected that fostering sustainable, low-impact opportunities to enjoy the lake would encourage more people to value it and, ultimately, increase the number of people engaged in lake stewardship.

These policies should be read with other policies in the Plan that have matters pertaining to recreational practices. A number of these other policies can provide linkages and direction for the protection and support of recreational and tourism activities, uses and developments within the *Lake Simcoe watershed*.

Key Facts

- The frequency and duration of public beach closures have increased since 2003.
- In addition to the permanent residents in the area, there are more than 12,000 cottages on the lake, increasing the population by 50,000 during the summer months.
- *Recreational activities* are estimated to inject more than \$200 million annually into the local economy.
- Lake Simcoe is the most intensively fished inland lake in the province. In 2005, anglers spent over 700,000 hours ice fishing on Lake Simcoe from the end of January to the middle of March.

Ontario Parks, a branch within the Ministry of Natural Resources is an example of how the Province is already undertaking work to improve the management, protection and planning of provincially significant elements of the natural and cultural landscape of Ontario.

The Ministry of Natural Resources' mandate includes the management and protection of Ontario's protected areas system. There are five provincial parks within the *Lake Simcoe watershed*. Sibbald Point, Mara, and McRae Point (e.g., recreation class parks with beaches and campgrounds) and Holland Landing Prairie and Duclos Point (e.g., nature reserve class parks, established to represent and protect distinctive natural habitats and landforms).

The *Provincial Parks and Conservation Reserves Act* includes objectives for protection, outdoor recreation, heritage appreciation and research. It also states the maintenance of ecological integrity is the first priority in the planning and management of Ontario's provincial parks and conservation reserves. Accordingly, provincial parks contribute to the objectives of the Plan.

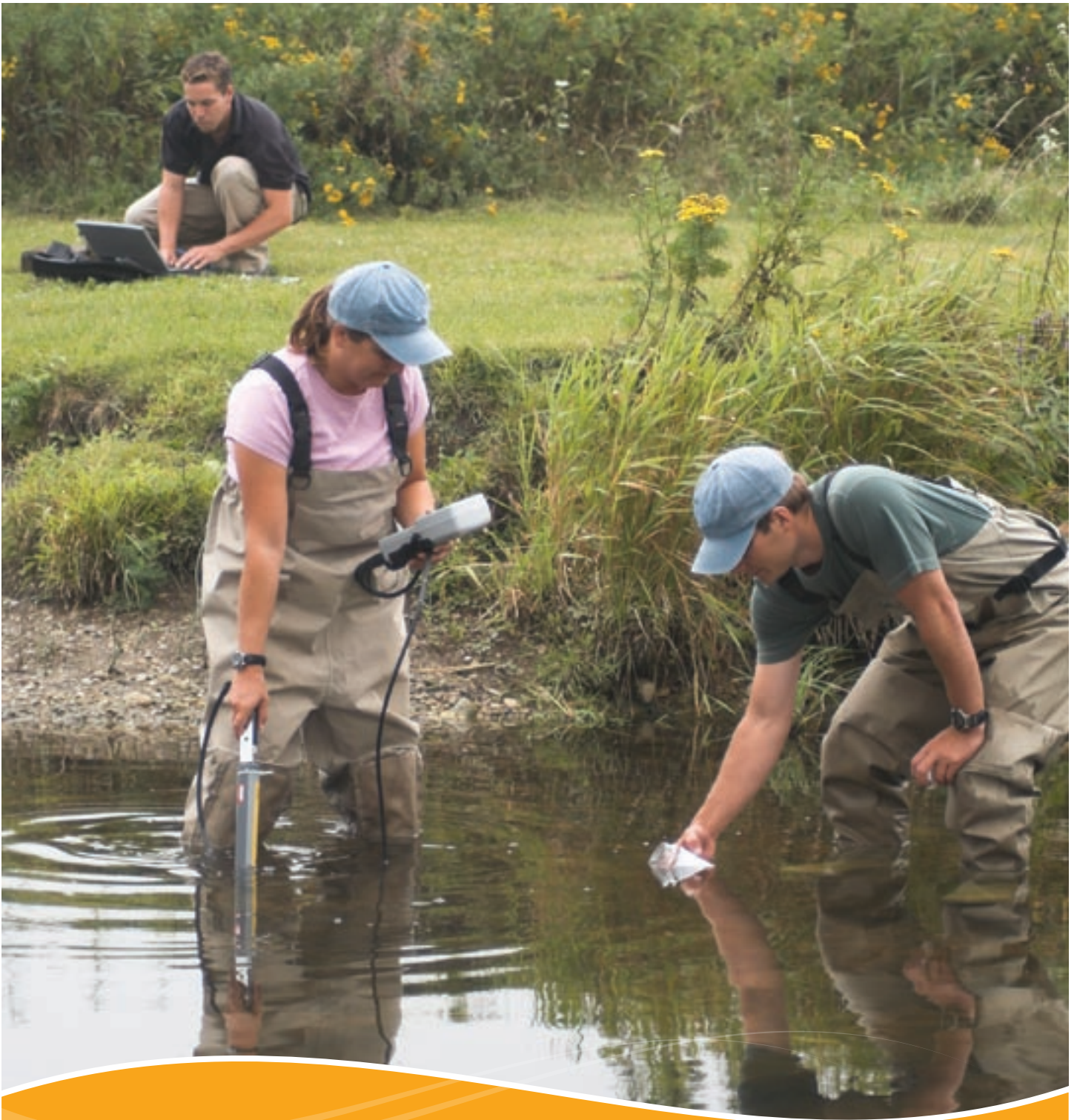
7.12-SA Beginning within one year of the date the Plan comes into effect, the Province, in collaboration with municipalities, recreation and tourism industry and related associations will develop a multi-seasonal recreational strategy for the *Lake Simcoe watershed* to improve conditions for *environmentally sustainable recreation* by:

- a) measuring sustainability with *recreational activities* that will contribute to an improved quality of life and the preservation of the ecosystem; and
- b) considering a review of relevant recreational plans, where applicable.

The strategy will identify key recommended actions while considering, at a minimum, the environmental impacts of *recreational activities* (e.g., boating) that may impair the ecological health of Lake Simcoe; issues related to public access sites (e.g., quality of sites, affordability, public stewardship opportunities, available parking); and identifying priority areas (e.g., waterfronts, potential public land acquisitions, cultural and historical sites).

The strategy will identify potential amendments to the Plan to ensure the recommended actions are undertaken and completed by 2012.

- 7.13-HR** When approving a *development* along the *Lake Simcoe shoreline*, municipalities shall ensure that public access to the Lake is maintained.
- 7.14-HR** Where, in accordance with the policies of the Plan, *development and site alteration* is permitted within 120 metres of the *Lake Simcoe shoreline* or a *permanent or intermittent stream* or a *wetland*, the *development* or *site alteration* will be integrated with existing or proposed parks and trails to the extent feasible.
- 7.15-SA** The MTR, MOE, MNR, MHP and other ministries will continue to promote sustainable recreation and tourism practices to help protect the ecological and cultural heritage of the *Lake Simcoe watershed*.
- 7.16-SA** Owners and operators of marinas, golf courses and other recreational businesses in collaboration with recreational associations should develop and implement programs that promote best management practices and sector-led initiatives to help protect and restore the *ecological integrity* of Lake Simcoe and its watershed.
- 7.17-SA** MOE with the support of interested recreational associations, municipalities and other partners will monitor and promote environmental certification for marinas, golf courses and other recreational businesses.



Chapter 8

Implementation

chapter eight

CONTEXT

This Plan would affect decisions and defines a wide range of actions that would help to protect and improve the ecological health of the *Lake Simcoe watershed*. For the Plan to be implemented successfully, ongoing coordination and collaboration amongst many organizations and communities is required.

This chapter outlines the overarching policies and approaches that would guide the implementation of the policies described in the preceding chapters. These include:

- prioritizing actions, coordinating analyses, developing targets, and managing on a multi-scale sub-watershed basis;
- working with existing stewardship partners and enhancing opportunities for community-wide involvement and participation;
- using research, monitoring and reporting to ensure the Plan is based on best available science;
- working together in a coordinated and collaborative fashion with all levels of government, non-governmental organizations, First Nations and Métis communities, the private sector, and citizens;
- considering opportunities to engage First Nations and Métis communities at all stages of Plan implementation and developing engagement processes in collaboration with First Nations and Métis community partners;
- developing clear fiscal tools and financial resources to support implementation of the Plan; and
- embracing an adaptive management approach and amending the Plan over time.



Collaboration and teamwork



Stewardship Rangers in action on the Holland Marsh

Each of these is discussed in more detail below.

Subwatershed Evaluations

Managing on a watershed basis makes sense because watersheds are ecologically-relevant boundaries for managing human activities and resources. Watersheds and subwatersheds can be defined at various scales depending on environmental considerations and specific management requirements. For instance, some policies and management actions may apply across an entire watershed, whereas others may be specific to the needs and priorities of a particular subwatershed.

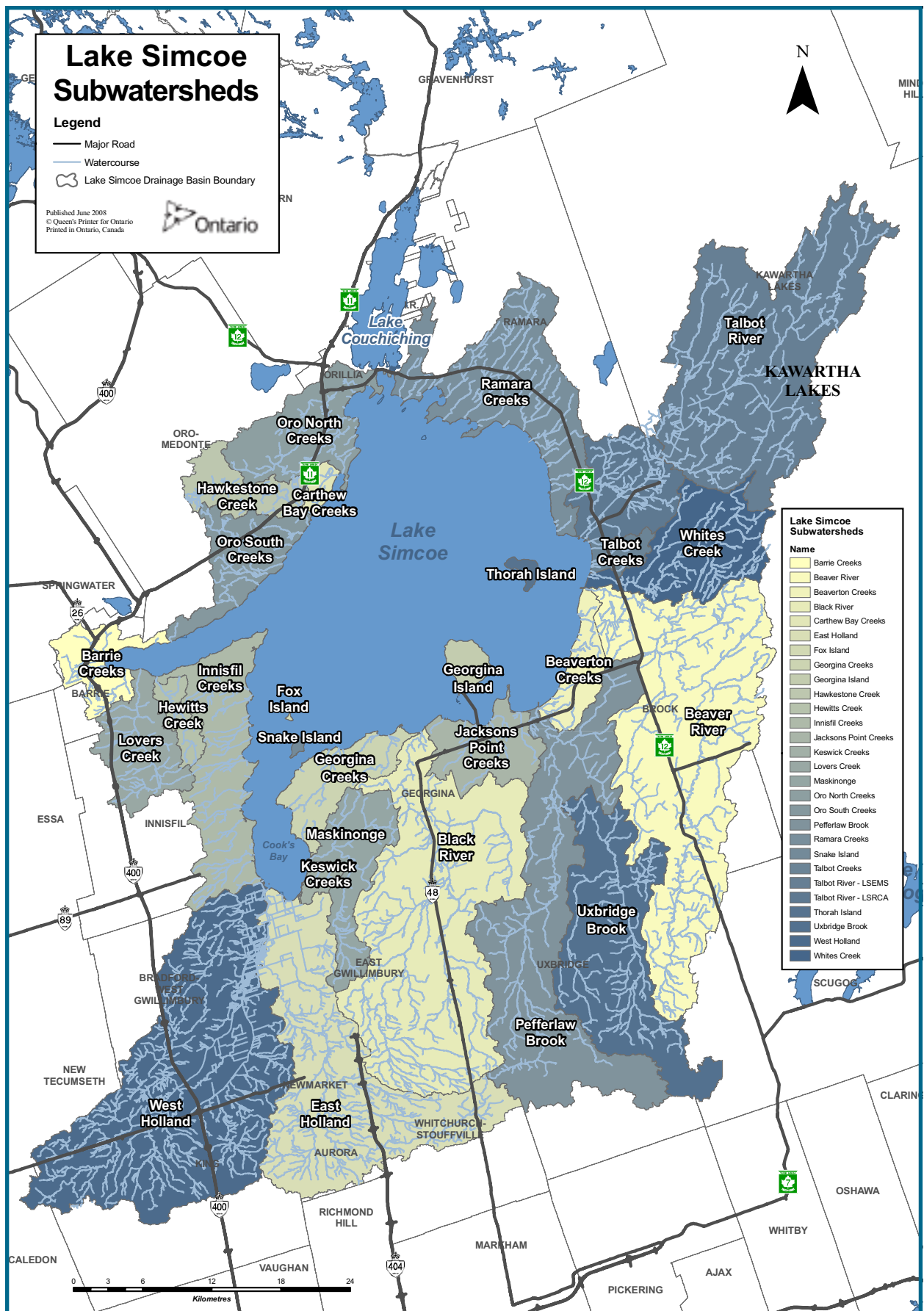
Subwatershed evaluations will reflect the goals, objectives and targets of the Lake Simcoe Protection Plan and will be tailored to subwatershed needs and local issues. These evaluations will provide more detailed guidance for area-specific hydrologic and natural heritage resource planning and management.

A subwatershed approach will also help determine and define priority areas within the *Lake Simcoe watershed*, which may need immediate action. This subwatershed approach will be critical to prioritizing initial actions, developing focused action plans, monitoring and evaluating results to ensure plans are updated to reflect new science, information and experience with implementation.

8.1-SA Within one year of the date the Plan comes into effect, the MOE and LSRCA in collaboration with other ministries, the First Nations and Métis communities, watershed municipalities, the *Lake Simcoe Coordinating Committee* and the *Lake Simcoe Science Committee* will develop guidelines to provide direction on:

- a. identifying sub-lake areas and subwatersheds of the *Lake Simcoe watershed* and determining which sub-lake areas and subwatersheds are of priority;
- b. preparing subwatershed evaluations including, where appropriate, developing subwatershed-specific targets and recommending actions that need to be taken within subwatersheds in relation to:
 - i. the phosphorus reduction strategy (Chapter 4),
 - ii. stormwater management master plans, including consideration of the amount of impervious surfaces within subwatersheds (Chapter 4),
 - iii. water budgets (Chapter 5),
 - iv. instream flow regime targets (Chapter 5),
 - v. preventing *invasive species* and mitigating the impacts of existing *invasive species* (Chapter 7),
 - vi. natural heritage restoration and enhancement (Chapter 6),
 - vii. increasing public access (Chapter 7), and
 - viii. climate change impacts and adaptation (Chapter 7);
- c. monitoring and reporting in relation to subwatershed targets that may be established; and
- d. consultation to be undertaken during the preparation of the subwatershed evaluations.

8.2-SA In developing the guidance outlined in 8.1, the partners identified above will develop approaches to undertake the subwatershed evaluations in a way that builds upon and integrates with source protection plans required under the Clean Water Act, 2006, as well as relevant work of the LSRCA and watershed municipalities.



Example of subwatersheds

- 8.3-SA** Within five years of the date the Plan comes into effect, the LSRCa in partnership with municipalities and in collaboration with the MOE, MNR, and MAFRA will develop and complete subwatershed evaluations for priority subwatersheds.
- 8.4-DP** Municipal official plans shall be amended to ensure that they are consistent with the recommendations of the subwatershed evaluations.

Stewardship, Education and Outreach

In the *Lake Simcoe watershed*, it is recognized that all segments of the community are responsible for environmental impacts on the Lake, and that protection of the lake and its watershed is a shared responsibility.

Stewardship, education and outreach are essential tools that will assist in achieving the Plan's objectives. They provide mechanisms for connecting directly with rural, agricultural, urban and shoreline residents, governments, industries and business interests in the watershed. The tools of stewardship help us to better understand our cumulative influences on the *Lake Simcoe watershed*, and encourage everyone to voluntarily engage in responsible and sustainable actions.

The scientific results of stewardship can be a challenge to measure accurately, but collective, voluntary actions speak to the human element of the Plan's priorities and policies requiring action and effort, or changes in behaviour, including those that affect aquatic life, water quality, water quantity, shorelines and natural heritage, and other threats (e.g., *invasive species* and climate change) and activities. Building on the Plan's adaptive management approach, the stewardship policies will build on past efforts and will promote priority actions, while focusing on partnerships and collaboration, and will evolve over time as more is learned, accomplishments are made, and new priorities emerge.



Shoreline stewardship project

Stewardship programs will support positive actions. They help to address specific threats facing the *Lake Simcoe watershed* and encourage a strong land and water ethic. Education and outreach programs connect the environmental, economic, social and scientific aspects of stewardship and help to improve community acceptance and encourage positive changes in people's behaviour. They can include demonstration projects that showcase innovative approaches and the beneficial results of stewardship actions, and pilot projects to test and support innovations in sector-specific technology. Community-based monitoring programs can help to increase citizen awareness and involvement while contributing to improved knowledge of the watershed and its ecological conditions.

The extent to which stewardship organizations and programs can make a difference is enhanced when they partner in areas of mutual interest. Collaboration and networking between community partners, governments, industries, landowners and residents can help to identify watershed-wide stewardship priorities, reduce duplication, enhance program delivery and build a strong and holistic stewardship approach to the entire *Lake Simcoe watershed* community. The Plan presents three main areas in which stewardship, education and outreach activities would be concentrated:

1) Lake Simcoe Stewardship Network/ Alliance

The province is committed to supporting the establishment of a Lake Simcoe Stewardship Network/Alliance that will have broad representation from local and regional community groups, governments, First Nations and Métis communities, the LSRCA, businesses and industries, and members of the agricultural, rural, and urban communities. The Network/ Alliance will offer a community-based partnership forum for these organizations and partners to network, build capacity, coordinate activities and leverage additional resources for stewardship programs and activities that will help to achieve the environmental protection and restoration objectives of the Plan. As a body, it will strive to:



Farming is an integral part of the watershed

- provide a forum to help identify stewardship priorities and coordinate efforts;
- facilitate regular information sharing throughout the watershed;
- enhance collaboration, technology transfer, accountability and reporting;
- increase efficiencies in cost-sharing, communication and co-marketing while recognizing individual partner roles, strengths and successes;
- offer input into subwatershed stewardship planning and programming;
- enhance stewardship opportunities in all sectors of the watershed community; and
- champion key new initiatives, technologies and best management practices, including new social marketing initiatives; urban and youth outreach.

2) Agricultural Stewardship

Farmers have a well established history of stewardship, and will continue to build on past efforts to implement best management practices while adapting and innovating as new information becomes available. In the *Lake Simcoe watershed*, agricultural lands, particularly polders such as the Holland Marsh, encompass some of the most productive agricultural areas in the province. With their proximity to large urban markets, the watershed's agricultural lands represent essential food production areas.

To date, the Federal-Provincial Environmental Farm Plan Program (administered by the Ontario Federation of Agriculture on behalf of the Ontario Farm Environmental Coalition) has established a comprehensive framework for education and engagement of agricultural producers in voluntary best management practices. These efforts have been supported and augmented by numerous others, including the LSRCA (e.g. the Landowner Environmental Assistance Program), Ontario Stewardship, and many community-based groups. The Plan will build on these successes.

To increase and promote stewardship actions that help to reduce environmental risks associated with raising livestock and growing crops in the *Lake Simcoe watershed*, programs to help farmers with the cost of implementing measures will be encouraged. Some examples of best management practices that will continue to be encouraged include restricting livestock access to watercourses; establishing vegetated buffers along lake and tributary shorelines; improving

on-farm storage and handling of petroleum products, pesticides, manure and fertilizer; modifying tillage practices to reduce soil erosion and run off; and using nutrients, such as phosphorus more effectively.

To take action in priority areas, enhanced cost-share opportunities will be developed with community partners, and provincial and federal agencies. The Plan provides opportunities for technical knowledge transfer through demonstration projects and pilots; supports innovative best management practice approaches; and fosters science and performance evaluation. It is the intent of the Province to provide enhanced funding to leverage the existing Environmental Farm Plan Program and address priority issues in the watershed. In addition, the government will collaborate with other funding and stewardship programs in the watershed to ensure that efficiencies are realized and improved outcomes are delivered.

3) Stewardship for Non-Agricultural Landowners, Residents and the Broader Community

For many years throughout rural and urban areas of the watershed, numerous organizations, community groups and individuals have been actively engaged in environmental restoration activities, along with stewardship and education programs to protect and improve the health and natural heritage of Lake Simcoe and its watershed.

The Plan supports the development of a Community Stewardship Program that will parallel the cost-shared educational and incentive-based approach of the Environmental Farm Plan Program, and builds on existing community-wide programs and activities. The initial goal is to encourage non-farm landowners and residents in rural and urban areas of the watershed to engage in activities that protect and improve water quality and quantity, aquatic habitat, natural heritage features and prevent or respond to *invasive species*. The program will focus on a range of potential actions, from simple behavioural changes to on-the-ground restoration projects. The program will enhance partnerships among existing stewardship organizations, with a view to streamlining and increasing program accessibility and funding for non-farm landowners and residents.

As the program evolves, its focus will extend to stewardship, education and outreach to the urban public and recreational and industrial sectors. Community-based monitoring and innovations will offer all citizens an opportunity to participate in protecting the lake and its watershed. In particular, educational programs that engage youth in stewardship activities will be strongly encouraged.

The goal of the following stewardship policies is to promote voluntary actions that improve watershed conditions. Priorities and specific actions will be reported, reviewed and adapted over time as needed to support ongoing implementation of the Plan.

- 8.5-SA** Within one year of the date the Plan comes into effect, the MNR and other ministries, in collaboration with the First Nations and Métis communities, municipalities, the LSRCA, and other stewardship partners, will establish a broad-based, watershed-wide stewardship network/alliance. The network/alliance will strengthen the strategic focus of stewardship programs and activities and enhance collaboration among landowners, agencies, industry, and citizen/community organizations to support implementation of the Plan.
- 8.6-SA** The MNR and the MAFRA, in collaboration with municipalities, the LSRCA, the First Nations and Métis communities, and other stewardship partners, will develop a structured educational and incentive-based stewardship program for rural and urban (non-farm) landowners in the watershed to promote the adoption of best management practices that support implementation of the Plan.

- 8.7-SA** The MAFRA, in consultation with the MNR, the LSRCA and agricultural organizations, will continue to develop and implement broad-based agri-environmental stewardship programs to promote the adoption of best management practices to support Plan priorities, including phosphorus load reduction, and riparian, soil and water management.
- 8.8-SA** The MAFRA, in consultation with the MNR, the LSRCA and other agricultural organizations, will promote the development and implementation of best management practices, demonstration and pilot projects focused on innovation and technology advancement as a means of supporting agricultural stewardship activities.
- 8.9-SA** Within three years of the date the Plan takes effect, and based on the results of other agri-environmental stewardship initiatives and scientific work completed in the watershed, the MAFRA and its stewardship partners will reassess stewardship programming, and modify as necessary, to address priority needs in the watershed.
- 8.10-SA** Based on the findings of the study identified in policy 4.16, 4.17, the MAFRA and its stewardship partners, in consultation with key stakeholders, will determine the need for additional or modified stewardship and best management practice measures to reduce phosphorus loadings and wind-borne erosion from agricultural activities in the *Lake Simcoe watershed*.
- 8.11-SA** The MOE, in consultation with industries, businesses, the development community, municipalities and other community organizations, will review operational, building and development standards and best management practices. Innovative design elements, for example, site-level storm water controls such as rain barrels or permeable pavements, and other site-specific options for stewardship will be encouraged.

Research, Monitoring and Reporting

To remain effective over time, the Plan must be adaptive to what is learned from ongoing scientific research and monitoring in the watershed. This Plan provides for a number of key research and monitoring actions. Collectively, these actions will help to improve our understanding of how the *Lake Simcoe watershed* functions and increase our ability to detect changes in the natural environment. Scientific research and monitoring will also inform the adaptive management approach used in the Plan by providing the information necessary to review and evaluate the effectiveness of Plan policies and targets.

The Plan adopts a precautionary approach and prescribes action using the best available scientific information with the understanding that there are current gaps in our knowledge of the lake and its watershed. To begin to address these knowledge gaps and to reduce the uncertainty around current information, the Plan provides for research initiatives that will cover a range of key *Lake Simcoe watershed* issues, including water quality and quantity, aquatic life and habitat, *invasive species* and climate change. These research initiatives will inform the implementation of current policies and help direct future amendments to the Plan. Research will be coordinated by the MOE, the MNR and the LSRCA, in collaboration with the *Lake Simcoe Coordinating Committee*, the *Lake Simcoe Science Committee*, the First Nations and Métis communities and other relevant agencies.

Key research initiatives in the Plan include:

- conducting research projects on the aquatic communities of Lake Simcoe and its tributaries (see *Chapter 3 Aquatic Life*);
- promoting, conducting and supporting scientific water quality research projects (see *Chapter 4 Water Quality*);
- completing Tier 2 water budgets for all stressed subwatersheds (see *Chapter 5 Water Quantity*);

- developing and implementing a monitoring program and support research, in relation to the targets and indicators associated with natural heritage and hydrologic features and areas (see Chapter 6 *Shorelines and Natural Heritage*);
- identifying opportunities for research funding and partnerships that will help improve knowledge related to the impact and control of *invasive species* and specific study initiatives to evaluate invasive species pathways and social marketing methods (see Chapter 7 *Newly Introduced Invasive Species*);
- identifying areas for research on the impact of climate change in the watershed (see Chapter 7 *Climate Change*);
- preparing a comprehensive recreation strategy for Lake Simcoe (see Chapter 7 *Recreational Activities*);
- completing subwatershed evaluations for priority subwatersheds (see Chapter 8 *Subwatershed Evaluations*);
- promoting the development of best management practices demonstration and pilot projects focused on innovation and technology advancement as a means of supporting agricultural stewardship (see Chapter 8 *Stewardship*); and
- reviewing operational, building and development measures, including best management practices (see Chapter 8 *Stewardship*).

The partners will also collaborate to design and implement a comprehensive monitoring strategy for the *Lake Simcoe watershed*. The Plan also provides for the development of new, or the enhancement of existing monitoring programs needed to fill current monitoring gaps. A comprehensive coordination strategy will help to ensure that required data are available in a suitable format and that monitoring efforts are not being duplicated.

The results of the above-mentioned scientific research and monitoring initiatives will be reported periodically by the MOE and the partner ministries. At least once every five years, the MOE in partnership with other ministries will produce a report that describes the results of monitoring programs as well as the extent to which the objectives of the Plan are being achieved.

Also, when requested by the Minister, the *Lake Simcoe Science Committee* may provide advice on the design and implementation of monitoring programs.

The MOE, in partnership with other ministries, will also monitor the implementation of the Plan, including reviewing the performance of the Plan's policies concurrent with any review of this Plan.

8.12-SA Every two years, the MOE, MNR, MAFRA and the LSRCA will organize an event or events that focus on scientific monitoring and research related to the protection of the ecological health of Lake Simcoe and its watershed. The event will facilitate the transfer of scientific information and knowledge and coordinate monitoring and research activities among watershed partners to promote the efficient use of resources and funds.

Coordination, Public Engagement and Aboriginal Community Engagement

In designing the proposed coordination framework, the Province considered what it heard in response to its March 2008 discussion paper, as well as the earlier recommendations of the LSEMS Steering Committee and Working Group's 2007 recommendations on governance. Input was also received from the *Lake Simcoe Stakeholder Advisory Committee*.

Primary among the advice given was that a new decision-making body should not be created. There was also considerable support for a greater role for community partners in the protection of Lake Simcoe, in recognition of the fact that no one agency can do everything that needs to be done. Involvement of community partners in implementation would also provide opportunities for greater collaboration and information sharing as well as ensure a higher degree of transparency. In addition, community partners and the public indicated that they supported a leadership role for the Province. The proposed coordination framework is consistent with the advice that was received.

Provincial Leadership:

The Province will play a lead role in developing and coordinating implementation of the Lake Simcoe Protection Act, 2008, and the Plan.

The MOE has established a new Lake Simcoe Project team for this purpose. One of its primary functions is to facilitate the establishment of collaborative partnerships for implementation, with opportunities for public involvement. Engaging First Nations and Métis communities, municipalities, the public and with all stakeholders is an integral part of implementing the Plan. Another key function of the project team is to provide initial organizational support to two new committees, the *Lake Simcoe Science Committee* and the *Lake Simcoe Coordinating Committee*. In addition there are a number of policies and programs that will be led by the Project team and/or the other ministry partners.

The MOE Lake Simcoe Project team will be the primary point of public contact for initial implementation of the Plan. However, it should be noted, the interests of the Province are also represented and supported by the MOE District and field offices in Barrie and Newmarket, MNR District offices in Midhurst and Aurora, the Lake Simcoe Fisheries Assessment Unit in Sutton and an MAFRA field office in Midhurst, all located within the watershed. In addition, numerous other corporate ministry units (e.g., aboriginal affairs, science, research, monitoring, policy, programs, standards, approvals, compliance and enforcement) from various ministries support the ongoing implementation of the Plan.

How Will The Public Be Assured That the Plan Is Being Implemented?

For each policy in the Plan, one or more public bodies are ultimately responsible for its implementation. The Minister of Environment, however, is ultimately responsible for ensuring that the Plan is being implemented and determining whether the Plan is achieving its objectives. To measure progress toward implementation, the Minister is required by the legislation to provide progress reports that describe the results of implementation of the Plan and the extent to which the objectives of the Plan are being achieved. These reports will be posted on the Environmental Bill of Rights Registry. The *Lake Simcoe Coordinating Committee* also provides advice on implementation and whether the Plan is meeting its objectives. Embracing an adaptive management approach, the Plan will be amended if necessary to reflect areas for improving enforcement capabilities and to ensure policies are implemented appropriately.

Implementation of the Lake Simcoe Protection Plan will build on the protections for the *Lake Simcoe watershed* that are provided by other provincial plans, and provincial legislation, including the Clean Water Act, 2006 the Conservation Authorities Act, the Ontario Water Resources Act and the Planning Act. The intent of the Lake Simcoe Protection Act, 2008 is to ensure consistent land use and environmental policies are applied throughout the *Lake Simcoe watershed*, building on existing protections and avoiding duplication wherever possible.

Advisory Committees under Lake Simcoe Protection Act, 2008

The Lake Simcoe Protection Act, 2008 establishes two advisory committees: the *Lake Simcoe Science Committee* and, the *Lake Simcoe Coordinating Committee*.

Under the Act, the Lieutenant Governor in Council appoints the members of the committees after considering recommendations of the Minister.

The functions of these advisory committees, as set out in the Act, are described below. The Minister is also authorized to specify additional functions for each advisory committee.

(1) Lake Simcoe Science Committee

The *Lake Simcoe Science Committee*, composed of scientific experts in watershed protection issues, is responsible for reviewing the environmental conditions of the watershed and to advise on the:

- ecological health of the *Lake Simcoe watershed*;
- current and potential significant threats to the ecological health of the *Lake Simcoe watershed* and potential strategies to deal with these threats;
- scientific research that is needed to support the implementation of the Plan; and
- When requested by the Minister to provide advice on:
 - design and implementation of monitoring programs to monitor whether the Plan is meeting its objectives;
 - proposed amendments to the plan; and
 - proposed regulations made under the Lake Simcoe Protection Act, 2008 and under subsection 75(1.7) of the Ontario Water Resources Act.

This committee could also be asked by the Minister to assess whether a proposed amendment to the Plan is consistent with the precautionary principle and, if not, whether the proposed amendment should be modified to achieve consistency. While the Act does not specify criteria for membership on the *Lake Simcoe Science Committee*, members for the committee will be selected based on their relevant expertise.

(2) Lake Simcoe Coordinating Committee

The functions of the *Lake Simcoe Coordinating Committee* includes, among others:

- providing advice to the Minister on the implementation of the Plan;
- providing advice to the Minister on any issues or problems related to the implementation of the Plan;
- providing advice to the Minister on the types of measures that could be taken to deal with the threats to the ecological health of the *Lake Simcoe Watershed*, identified by the *Lake Simcoe Science Committee*, including policies that could be included in the Plan, or regulations that could be made under an Act; and
- assisting the Minister and other public bodies to monitor progress on the implementation of the Plan.

Under the Act, the Lieutenant Governor in Council appoints the members of the committee after considering recommendations of the Minister.

The Act specifies that the *Lake Simcoe Coordinating Committee* be comprised of representatives drawn from across the watershed including persons representing municipalities, Aboriginal communities, the LSRCA, the Province, the agricultural, commercial and industrial sectors of the watershed's economy including small businesses, interest groups, environmental organizations, and the public.

(3) Operation of Committees

Public bodies responsible for implementing SA (strategic action) policies set out in the Plan would be responsible for working with the chair of each committee to ensure that, where appropriate, the advice of the committees is obtained in a timely manner and to provide progress updates from time to time. In relation to SA policies that do not have a specified timeframe, lead public bodies will work through the coordinating committee to establish an implementation strategy for those policies. The Minister may set the practices and procedures of the committees.

It is recognized that the committees may need additional support. For example, a working group currently exists with members from agencies and ministries that coordinates water quality monitoring in the watershed. Building on these alliances amongst organizations that conduct these functions in the watershed would ensure effective collaboration and efficient use of resources. Benefits from these alliances include improved information management, communications, public education, outreach, research, stewardship and monitoring.

Another example of a critical alliance to foster between the advisory committees and key organizations includes that with the Lake Simcoe Fisheries Stakeholder Committee and the proposed Lake Simcoe stewardship network/alliance, to be established as per *Policy 8.5*.

In 2007, the MNR created a Lake Simcoe Fisheries Stakeholder Committee to promote, implement and communicate fisheries stewardship initiatives and to provide advice and recommendations on topics related to fisheries management on Lake Simcoe, Lake Couchiching and their watersheds. Membership on the committee represents the diverse interests in the fishery resources of Lake Simcoe.

Public Engagement

The Plan will be informed by the best available science and the advice of those who live, work, invest and play in the *Lake Simcoe watershed* as they plan for a healthy future for Lake Simcoe. Collaboration with the public, Aboriginal communities and community partners throughout plan implementation, reviews and amendments will be important to guide the implementation of the Plan.

Numerous policies will require the engagement and consultation of public, First Nations and Métis communities, and community partners including, the development of the Phosphorus Reduction Strategy; the development of a shoreline regulation and shoreline management strategy; and the development of a climate change adaptation strategy for the watershed.

The Act also requires that significant amendments to the Plan be posted on the Environmental Bill of Rights Registry allowing the public to comment on them and provide critical advice to the government.

Aboriginal Community Engagement

The Plan recognizes the contributions made by First Nations and Métis communities to protect the health of the lake and the special relationship that the Chippewas of Georgina Island First Nation have with Lake Simcoe. The Chippewas of Georgina Island First Nation have been an active participant in the LSEMS for many years. The Plan anticipates that Aboriginal communities will maintain an active interest and participation with the design, development and implementation of protection initiatives and the Plan provides for ongoing opportunities for Aboriginal communities with cultural, heritage or economic links to Lake Simcoe to continue to collaborate on the design, development and implementation of programs and initiatives to protect the lake.

Numerous policies in the Plan recognize the need and desire for key implementing bodies to actively engage Aboriginal communities. The Province is committed to ensuring that Aboriginal communities have the necessary support to respond to and participate in engagement opportunities related to the design and development of Lake Simcoe protection initiatives.

All stakeholders have recognized that sustained funding is needed to implement the Plan. Given the costs of implementation, the Plan incorporates innovative funding mechanisms, while relying on cost sharing, partnerships and building on existing program funding.

The Plan reflects the following principles with respect to financing:

- diverse sources will be considered to reduce dependence on a single source;
- innovative financing tools will be promoted (i.e. public and private sector partnerships, *water quality trading*, etc);
- the priorities of the Plan must be reflected in financing approaches;
- environmental, economic and social sustainability will be considered;
- the role of municipalities, including continued responsibility for water and wastewater services is recognized;
- flexibility is needed to deal with emerging commitments and priorities over time;
- the evaluation of the options will take risk into consideration; and
- financing strategies must be clearly understood by the public.

Although there are significant costs associated with implementing the Plan, there are also tremendous ecological and economic benefits. A recent study shows that the benefits provided by the *Lake Simcoe watershed* ecosystem are, at a minimum, worth \$975 million per year². These benefits include carbon storage, water quality, flood control, waste treatment, clean air, as well as tourism and recreational opportunities.

Implementation of the Plan will be based on funding priority actions which are most critical to achieving the targets and objectives set out in the Plan. Wherever possible, cost-effective solutions will be employed. It is recognized that not everything can be done at once and that implementation will need to be phased-in over several years. Building on an adaptive management approach, actions will have built-in flexibility with a range of key partners and financing mechanisms identified.

Partnership Approach to Financing Implementation of the Plan

The funding approach to support the implementation of the Plan is based on partnerships, where no one organization will have to bear the burden of all costs. The Plan recognizes opportunities within existing programs, which already have committed funding and resources to support actions. Infrastructure requirements, such as stormwater management and sewage treatment upgrades, may be funded through cost-shared programs.

Partners providing either financial or human resources include:

- **The Province** has taken a leadership role in terms of both coordinating Plan implementation and funding key actions that are needed to deliver on policies in the Plan. The Province's operating funding commitment will focus primarily on supporting the operational requirements of Plan implementation, including:
 - assisting farmers and rural landowners to manage non-point phosphorus by encouraging best management practices that reduce environmental impacts;

² David Suzuki Foundation and the Lake Simcoe Region Conservation Authority released the report "Hidden wealth revealed in Ontario's Greenbelt: The Lake Simcoe Watershed - Lake Simcoe Basin's Natural Capital: The Value of the Watershed's Ecosystem Services", June 2008.

- supporting scientific research and monitoring, including promoting and conducting scientific water quality research projects, developing the phosphorus reduction strategy and developing and implementing a monitoring program; and
- coordinating the implementation of the Plan including supporting the two committees and dedicating staff in the Lake Simcoe Project team.
- **The federal government** has put in place the Lake Simcoe Clean-up Fund which provides support to priority projects aimed at reducing phosphorus, rehabilitate habitats to achieve nutrient reductions, and enhance research and monitoring capacity deemed essential for the restoration of Lake Simcoe and its watershed.
- **Municipalities** will continue to be responsible for water and wastewater infrastructure upgrades and investments.
- **Aboriginal communities** provide conservation efforts and actions in the watershed.
- **The LSRCAs** ongoing funding commitment supports the protection of natural resources in the Lake Simcoe watershed through partnerships with the community and government.
- Work of **environmental NGOs** throughout the watershed which promote the protection, conservation and restoration of the watershed.
- Contributions of **volunteers**, who have in the past and will continue to dedicate their time and resources to protecting and restoring the ecological health of the *Lake Simcoe watershed*.
- Stewardship, best management practices and actions being promoted and implemented by the **development community, private industry and the agricultural sector**.

Moving Forward

The Plan promotes innovative approaches such as *water quality trading*. The Province will conduct a feasibility study to serve as a basis for moving forward with a regulation to establish a *water quality trading* program in the *Lake Simcoe watershed*.

Water quality trading is a market-based approach that sets a limit on pollutants and allows those that have a high abatement cost to fund activities that reduce pollutants in other areas of the watershed at a lower cost. In the end, the same or a greater amount of pollution reduction is achieved at a lower total cost. *Water quality trading* has been successfully implemented in Pennsylvania, Virginia, Connecticut and parts of Ontario to address excessive nutrient loadings.

As various partners take responsibility for implementing policies, funding sources and the actual costs of implementation will become clearer. As the Plan is implemented, the Province will amend the Plan and the financing strategy to include these details.

Funding sources and priority of actions for the implementation of the Plan will be further informed by the work and advice of the *Lake Simcoe Coordinating Committee* and the technical and scientific advice of the *Lake Simcoe Science Committee*.

The Plan includes targets and timeframes for action. The public can refer to these to gain a better understanding of how funding for actions is being employed. Public reporting will also provide a critical link for communicating how funds are being spent to protect and restore the ecological health of the *Lake Simcoe watershed*.

Plan Amendments

Recognizing that this Plan is intended to adapt to new science and new information, provision is provided within the Act to amend the Plan. A proposal to amend this Plan could arise in many ways including:

- as a result of the Plan review that is to take place at minimum every ten years,
- in response to monitoring reports, and
- in response to advice from the *Lake Simcoe Coordinating Committee* or the *Lake Simcoe Science Committee*.

The Act requires that when a Plan amendment is proposed, that it be posted on the Environmental Bill of Rights registry and that notice be provided. This will allow for municipalities, First Nations and Métis communities, stakeholders and the public to be involved in changes to the Plan and will give the government opportunity to consider their critical advice.

To facilitate awareness and implementation of amendments, to the extent practical, the MOE will attempt to make or propose amendments to this Plan such that several amendments take place at once, not individually or in close succession.

8.13 Pursuant to paragraph 10 of subsection 5 (2) of the Act, the following types of Plan amendments may be approved by the Minister of the Environment:

- Amendments to **SA** policies and **M** policies (policies that relate to strategic actions and policies that relate to monitoring);
- Amendments to **HR** policies (policies that require applicable decisions to have regard to the policy);
- Amendments to **DP** policies (policies that require applicable decisions to conform to the policy), but only for the following purposes:
 - a. to clarify the meaning of a policy,
 - b. to ensure a policy is consistent or does not conflict with other policies in the Plan or with another provincial plan or the PPS,
 - c. to ensure a policy is consistent with or does not conflict with an assessment report and source protection plan submitted under the Clean Water Act, 2006 for the Lake Simcoe and Couchiching/Black River Source Protection Area; and
- Altering the other content of the Plan described in subsection 5 (1) of the Act, including the financial strategy, an indicator or a definition, but does not include:
 - a. a target under paragraph 4 of subsection 5 (2) of the Act,
 - b. a description of the areas to which regulations made under section 26 may apply, specified under paragraph 10 of subsection 5 (2), and
 - c. a policy under paragraph 10 of subsection 5 (2) of the Act that describes the type of amendments to the Plan that the Minister is authorized to approve.

For greater certainty, the Minister's authority to approve an amendment to the content of the Plan that is specified in this provision includes the authority to approve the removal or addition to that content.

The Minister may also cause an error in the Plan of a clerical, typographical or grammatical nature to be corrected.

APPENDIX

SCHEDULE OF APPLICABLE POLICIES

Policies listed are applicable to a decision if an “x” is marked in the row associated with the policy in the column associated with a type of decision. Decisions must conform with “DP” policies and have regard to “HR” policies³.

Summary of Effect of Designated Policies (DP) by Reference Number

Policy #	Planning Act	Condominium Act	Ontario Water Resources Act S. 53 (Sewage Works) Approvals	Permission under the Conservation Authorities Act	Public Lands Act	Lakes and Rivers Improvement Act Approvals
1.1-DP	x	x	x	x	x	x
4.1-DP	x					
4.2-DP			x			
4.3-DP			x			
4.4-DP			x			
4.7-DP	x					
4.8-DP	x	x				
4.9-DP			x			
4.10-DP			x			
4.11-DP			x			
4.15-DP	x	x	x	x		
4.20-DP	x	x				
4.21-HR				x	x	x
5.6-DP	x	x				
6.1-DP	x	x		x	x	
6.2-DP	x	x		x	x	
6.3-DP	x	x				
6.4-DP	x	x		x	x	
6.5-DP	x	x				
6.6-DP	x	x				
6.7-DP	x	x		x	x	x
6.8-DP	x	x		x	x	x
6.9-DP	x	x		x	x	
6.10-DP	x	x		x	x	
6.11-DP	x	x		x	x	
6.13-DP	x					
6.20-DP	x	x		x	x	
6.21-DP	x	x		x	x	
6.22-DP	x	x		x	x	
6.23-DP	x	x		x	x	
6.24-DP	x	x		x	x	
6.25-DP	x	x				
6.26-DP	x	x				
6.27-DP	x	x		x		
6.28-DP	x	x		x		

³ A DP or HR policy affects how a decision-making authority is exercised; it cannot alter the scope of that authority. For more information, please see Chapter 1, “Legal Effect of the Plan under the Lake Simcoe Protection Act, 2008”.

Summary of Effect of Designated Policies (DP) by Reference Number (continued)

Policy #	Planning Act	Condominium Act	Ontario Water Resources Act S. 53 (Sewage Works) Approvals	Permission under the Conservation Authorities Act	Public Lands Act	Lakes and Rivers Improvement Act Approvals
6.29-DP	X	X		X	X	
6.32-DP	X	X		X	X	
6.33-DP	X	X		X	X	
6.34-DP	X	X				
6.35-DP	X	X		X	X	
6.36-DP	X	X				
6.38-DP	X					
6.39-DP	X					
6.40-DP	X	X				
6.41-DP	X					
6.42-DP	X					
6.43-DP	X					
6.44-DP	X					
6.45-DP	X	X		X	X	
7.13-HR	X	X		X	X	
7.14-HR	X	X		X	X	
8.4-DP	X					

“Adverse effect” means any impairment, disruption, destruction or harmful alteration. (ORMCP)

“Agricultural uses” means the growing of crops, including nursery and horticultural crops; raising livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment. (Provincial Policy Statement, 2005)

“Agricultural-related use” means those farm-related commercial and industrial uses that are small-scale and directly related to a farm operation, and are required in close proximity to the farm operation. (Provincial Policy Statement, 2005)

“Average Concentration Limit” means the effluent concentration of a contaminant set out in a *sewage treatment plant* approval that shall not be exceeded by the owner for any specified period in time.

“Benthic” means bottom dwelling organisms that are used as *indicators* of environmental conditions.

“Biodiversity” means the variability among living organisms from all sources, including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems

“Bioengineering” means a natural engineering technique for bank stabilization that incorporates the use of native plants together with natural materials (logs, live stakes, live brush bundles, etc.) to increase slope stability.

“Connectivity” means the degree to which key natural heritage features or key hydrologic features are connected to one another by links such as plant and animal movement corridors, hydrologic and nutrient cycling, genetic transfer, and energy flow through food webs. (Greenbelt Plan)

“Development” means the creation of a new lot, a change in land use, or the construction of buildings and structures, any of which require approval under the Planning Act, the Public Lands Act, the Conservation Authorities Act, or that are subject to the Environmental Assessment Act, but does not include,

- a. the construction of facilities for transportation, *infrastructure* and utilities used by a public body;
- b. activities or works under the *Drainage Act*; or
- c. the carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect.

“Director” means a *Director* appointed under section 5 of the Ontario Water Resources Act.

“Dissolved oxygen” as it relates to the target of 7 mg/L, means the late summer, volume weighted, *hypolimnetic dissolved oxygen* concentration of 7 mg/L in Lake Simcoe.

“Ecological integrity” which includes hydrological integrity, means the condition of ecosystems in which,

- a. the structure, composition and function of the ecosystems are unimpaired by stresses from human activity,
- b. natural ecological processes are intact and self-sustaining, and
- c. the ecosystems evolve naturally. (ORMCP)

“Ecological functions” means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes, including hydrological functions and biological, physical, chemical and socio-economic interactions. (ORMCP)

“Enhanced protection level” means the level of protection for stormwater management works specified in Chapter 3 of the MOE’s Stormwater Management Planning and Design Manual, 2003 that corresponds to the end-of-pipe storage volumes required for the long-term average removal of 80% of suspended solids.

“Environmentally sustainable recreation” means an environmentally and socially responsible form of recreation which focuses on the intrinsic attractions of the natural and cultural environment and minimizes the impacts on ecosystems and the human community, while providing economic benefits for all on a sustained rather than short-term basis.

“Existing settlement areas” are *settlement areas* that are designated in an official plan on the date the Plan comes into effect.

“Existing uses” means uses legally established prior to the date that the Lake Simcoe Protection Plan came into force. Existing agricultural accessory buildings and structures including farm dwellings can expand on the same lot subject to the provisions of the municipal zoning by-law. (Greenbelt Plan)

“Fish habitat” As defined in the Fisheries Act, c. F-14, means spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes. (PPS, 2005)

“General Regulation” means Ontario Regulation 219/09 that is made under the Lake Simcoe Protection Act, 2008

“High quality” with respect to natural cover means that the cover demonstrates a number of characteristics that influence the functional ability of a feature such as shape, age, structure and area of cover.

“Hypolimnion” or “hypolimnetic” means the cold lower layer of water below the thermocline in a stratified lake. Lake stratification generally sets up in the spring and lasts until early fall when the lake becomes fully mixed. The temperature of this lower layer of cold water is generally uniform and does not mix with the shallower warmer surface water during the summer and early fall.

“Indicators” are scientific variables (things that scientist measure) that help to simplify large amounts of complex information. They are a guide used to determine if environmental quality or health is good or bad, e.g. *dissolved oxygen* and phosphorous concentrations are often used to characterize and communicate the condition or health of a lake to the public (adapted from *Lake Simcoe Science Advisory Committee* report).

“Infrastructure” means physical structures (facilities or corridors) that form the foundation for *development* or resource use. *Infrastructure* includes: *sewage* and water systems, sewage treatment systems, waste management systems, electric power generation and transmission including *renewable energy systems*, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities, but does not include “community infrastructure” as defined by the Growth Plan for the Greater Golden Horseshoe, 2006. (Greenbelt Plan)

“Integrated treatment train approach” refers to a planned sequence of methods of controlling stormwater and keeping its impact to a minimum by techniques including, but not limited to:

- source controls, such as green roofs;
- lot-level controls such as rain gardens;
- conveyance controls such as grassed swales; and
- end-of-pipe controls such as wet ponds at the final discharge stage.

“Intermittent streams” means stream-related watercourses that contain water or are dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year. (Greenbelt Plan)

“Invasive species” means species of plants, animals, and micro-organisms introduced by human action outside their natural past or present distribution whose introduction or spread threatens the environment, the economy, or society.

“Invasive species watch list” means a list of *invasive species* that have high potential to be introduced to the watershed so should be “watched” for through general observation and more organized monitoring initiatives.

“Lakes” means any inland body of standing water, usually fresh water, larger than a pool or pond or a body of water filling a depression in the earth’s surface. (Greenbelt Plan)

“Lake Simcoe Coordinating Committee” means the committee established in Section 19 of the Lake Simcoe Protection Act, 2008 .

“Lake Simcoe Science Committee” means the committee established in Section 18 of the Lake Simcoe Protection Act, 2008 .

“Lake Simcoe Science Advisory Committee” and **“Lake Simcoe Stakeholder Advisory Committee”** mean the temporary committees established to assist in developing the Lake Simcoe Protection Act, 2008 and the initial Lake Simcoe Protection Plan.

“Lake Simcoe shoreline” means the mark made by the action of water under natural conditions on the shore or bank of Lake Simcoe which action is so common and usual and so long continued that it has created a difference between the character of the vegetation or soil on one side of the mark and the character of the vegetation or soil on the other side of the mark.

“Lake Simcoe watershed” means,

- a. Lake Simcoe and the part of Ontario, the water of which drains into Lake Simcoe, or
- b. If the boundaries of the area described by clause (a) are described more specifically in regulations, the area within those boundaries (Lake Simcoe Protection Act, 2008).

“Littoral Zone” means the area of shallow water in a lake that extends from the shoreline lakeward to the limit occupancy of rooted aquatic plants.

“Major development” means *development* consisting of:

- a. the creation of four or more lots;
- b. the construction of a building or buildings within a ground floor area of 500 m² or more,; or
- c. the establishment of a *major recreational use*. (ORMCP)

“Major recreational use” means recreational uses that require large-scale modification of terrain, vegetation, or both and usually also require large-scale buildings or structures, including but not limited to the following:

- a. golf courses;
- b. serviced playing fields;
- c. serviced campgrounds; and
- d. ski hills. (Greenbelt Plan)

“Mineral aggregate operation” means:

- a. An operation, other than wayside pits and quarries, conducted under a licence or permit under the Aggregate Resources Act, or successors thereto; and
- b. Associated facilities used in extraction, transport, beneficiation, processing or recycling of mineral aggregate resources and derived products such as asphalt and concrete, or the production of secondary related products. (Greenbelt Plan)

“Municipal sewage treatment plant” means a *sewage treatment plant* owned by a municipality or part of a municipal responsibility agreement.

“Natural self sustaining vegetation” means self sustaining vegetation dominated by native plant species. (ORMCP)

“Non-municipal sewage treatment plant” means a *sewage treatment plant* that is not owned by a municipality or part of a municipal responsibility agreement.

“On-site sewage system” means a sewage system to which the Building Code Act, 1992 applies.

“Partial services” means:

- a. municipal sewage services or private communal sewage services and individual on-site water services; or
- b. municipal water services or private communal water services and individual on-site sewage services. (Provincial Policy Statement, 2005)

“Permanent stream” means a stream that continually flows in an average year. (Greenbelt Plan)

“Priority stormwater management works” means *stormwater management works* that satisfy criteria established by the Ministry of Environment as may be amended from time to time. Such criteria may identify works based on a range of matters including, the size and type of *development* serviced by the works, the location of the works, any relevant subwatershed evaluations or stormwater management master plans, if available and the results of the phosphorous reduction strategy.

“Primary production dynamics” means the production of organic compounds from atmospheric or aquatic carbon dioxide, principally through the process of photosynthesis.

“Rated Capacity” means the average daily flow for which a sewage treatment plant is approved to handle.

“Recreational activities” means the types of land and water based activities that residents and tourists partake in at one’s own leisure for personal growth and development.

“Redevelopment” means the creation of new units, uses or lots on previously developed land in existing communities, including brownfield sites. (PPS, 2005)

“Renewable energy systems” means the production of electrical power from an energy source that is renewed by natural processes including but not limited to wind, water, biomass resource or product or solar and geothermal energy. (PPS, 2005)

“Riparian area” means the area of land adjacent to a stream, river, lake or *wetland*.

“Settlement areas” means urban areas and rural *settlement areas* within municipalities (such as cities, towns, villages and hamlets) where:

- a. *development* is concentrated and which have a mix of land uses; and
- b. lands have been designated in an official plan for *development* over the long term planning horizon provided for in the Provincial Policy Statement, 2005. Where there are no lands that have been designated over the long-term, the *settlement area* may be no larger than the area where *development* is concentrated. (Growth Plan)

“Sewage” includes drainage, stormwater, commercial wastes and industrial wastes and such other matter or substance as is specified by the regulations under the Ontario Water Resources Act. (OWRA)

“Sewage treatment plant” means a *sewage works* for which an approval is required under section 53 of the Ontario Water Resources Act and that,

- a. treats *sewage* from one or more buildings within the meaning of the Building Code Act, 1992,;
- b. disposes of the treated *sewage* in a surface water body in the *Lake Simcoe watershed*,; and
- c. phosphorus is present in the treated *sewage*.

“Sewage Works” means any works for the collection, transmission, treatment and disposal of *sewage* or any part of such works, but does not include plumbing to which the Building Code Act, 1992 applies. (OWRA)

“Shoreline built-up areas”: means shoreline areas outside of *settlement areas* that are:

- a. built-up areas where *development* is concentrated; or
- b. lands which have been designated in municipal official plans and zoned in municipal zoning by-laws for concentrated *development*, as of the date this Plan came into effect.

“Significant” means:

- a. In regard to *wetlands*, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;
- b. In regard to the habitat of endangered species and, threatened species, means the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of endangered species or, threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle;
- c. In regard to *woodlands*, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. The Province (Ministry of Natural Resources) identifies criteria relating to the forgoing (Greenbelt Plan); and
- d. In regard to *valleylands*, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. The Province (Ministry of Natural Resources) identifies criteria relating to the forgoing (Greenbelt Plan).

“Site alteration” means activities such as filling, grading and excavation that would change the landform and natural vegetative characteristics of land, but does not include:

- a. The construction of facilities for transportation, *infrastructure* and utilities uses by a public body;
- b. Activities or works under the Drainage Act; or
- c. The carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect. (Greenbelt Plan)

“Stormwater management works” means *sewage works* for which an approval is required under section 53 of the Ontario Water Resources Act and which is designed to manage stormwater.

“Subsurface sewage works” means a *sewage works* that disposes of *sewage* from one or more buildings within the meaning of the Building Code Act, 1992, does not dispose of *sewage* to a surface water body and for which an approval is required under section 53 of the Ontario Water Resources Act by virtue of subsection 53 (6.1) of the Act.

“Tier 2 water budget” means a water budget developed using computer based three dimensional groundwater flow models and computer based continuous surface water flow models to assess groundwater flows and levels, surface water flows and levels, and the interactions between them. (Director’s technical rules made under the Clean Water Act, 2006)

“Valleyland” means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (ORMCP).

“Water quality trading” means an approach to achieving water quality targets or objectives in which a point source may offset with or purchase pollutant reduction credits from another point source or non-point source in a defined geographic area (e.g. the same watershed) which can then be used to meet the point source’s discharge requirements for the same pollutant. *Water quality trading* will be further defined by regulation (rules, requirements, conditions, etc.) if enabled through regulation.

“Wetland” means land such as a swamp, marsh, bog or fen (not including land that is being used for agricultural purposes and no longer exhibits *wetland* characteristics) that,

- a. is seasonally or permanently covered by shallow water or has the water table close to or at the surface;
- b. has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants; and
- c. has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time (ORMCP).

“Wildlife habitat” means land that,

- a. is an area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species; and
- b. has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time (ORMCP)

“Woodland” means a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees (ORMCP).

LIST OF ACRONYMS

DFO	Department of Fisheries and Oceans
DP	Designated Policies
EFP	Environmental Farm Plans
LSEMS	Lake Simcoe Environmental Management Strategy
LSRCA	Lake Simcoe Region Conservation Authority
M	Monitoring (policies)
MEI	Ministry of Energy and Infrastructure (formerly MPIR – Ministry of Public Infrastructure Renewal)
MMAH	Ministry of Municipal Affairs and Housing
MHP	Ministry of Health Promotion
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MTR	Ministry of Tourism
NGO	Non-government organizations
OFAH	Ontario Federation of Anglers and Hunters
MAFRA	Ministry of Agriculture, Food and Rural Affairs
ORMCP	Oak Ridges Moraine Conservation Plan
OWRA	Ontario Water Resources Act
PPS	Provincial Policy Statement
SA	Strategic Actions (policies)

Get Involved

PROTECTING LAKE SIMCOE IS A PARTNERSHIP AMONG ALL OF US.

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Lake Simcoe
Protection Plan

Protecting our environment.



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